FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals Baseline

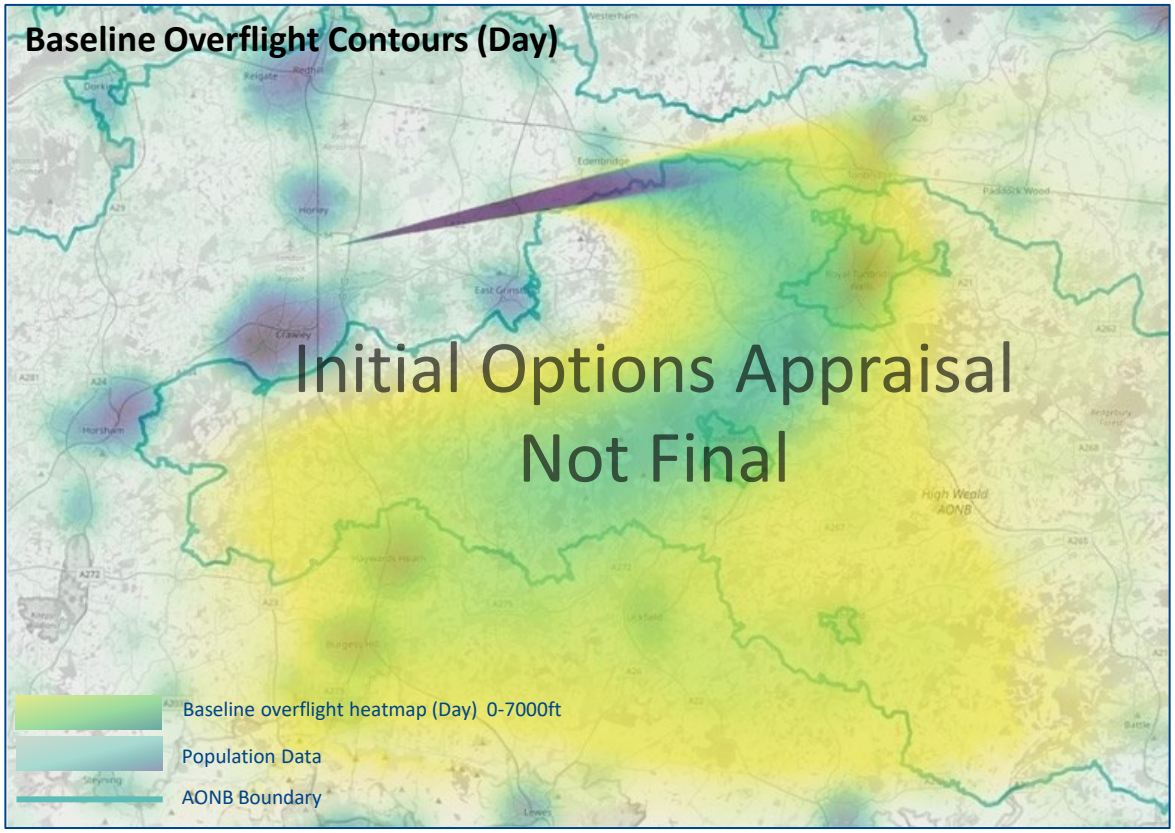
Description

Aircraft arriving at Gatwick Airport are tactically controlled (vectored) by ATC onto final approach. There are no defined routes to follow and aircraft are provided with instructions from Air Traffic Control who ensure the aircraft are safely spaced whilst being directed to land at Gatwick. The majority of aircraft use the Instrument Landing System (ILS) to land at Gatwick although RNP and LOC/DME approaches are also available. For more information, please see Gatwick's Stage 2A document.

Noise

The baseline 'do nothing' scenario would not change the noise environment at Gatwick. Aircraft would continue to be tactically controlled (vectored) by ATC before joining the final approach. Between 23.30 and 06.00, aircraft shall not join final approach (join the centre-line) below 3,000ft or closer than 10nm from touchdown. Before landing at the aerodrome aircraft maintain as high an altitude as practicable and shall not fly over the congested areas of Crawley, East Grinstead, Horley and Horsham at an altitude of less than 3000ft nor over the congested area of Lingfield at an altitude of less than 2000ft. As the airspace is not modernised, aircraft may be prevented from continuously descending. As traffic within the LTMA increases, this could lead to decreased CDO performance which has an impact on noise.

Overflight Illustration



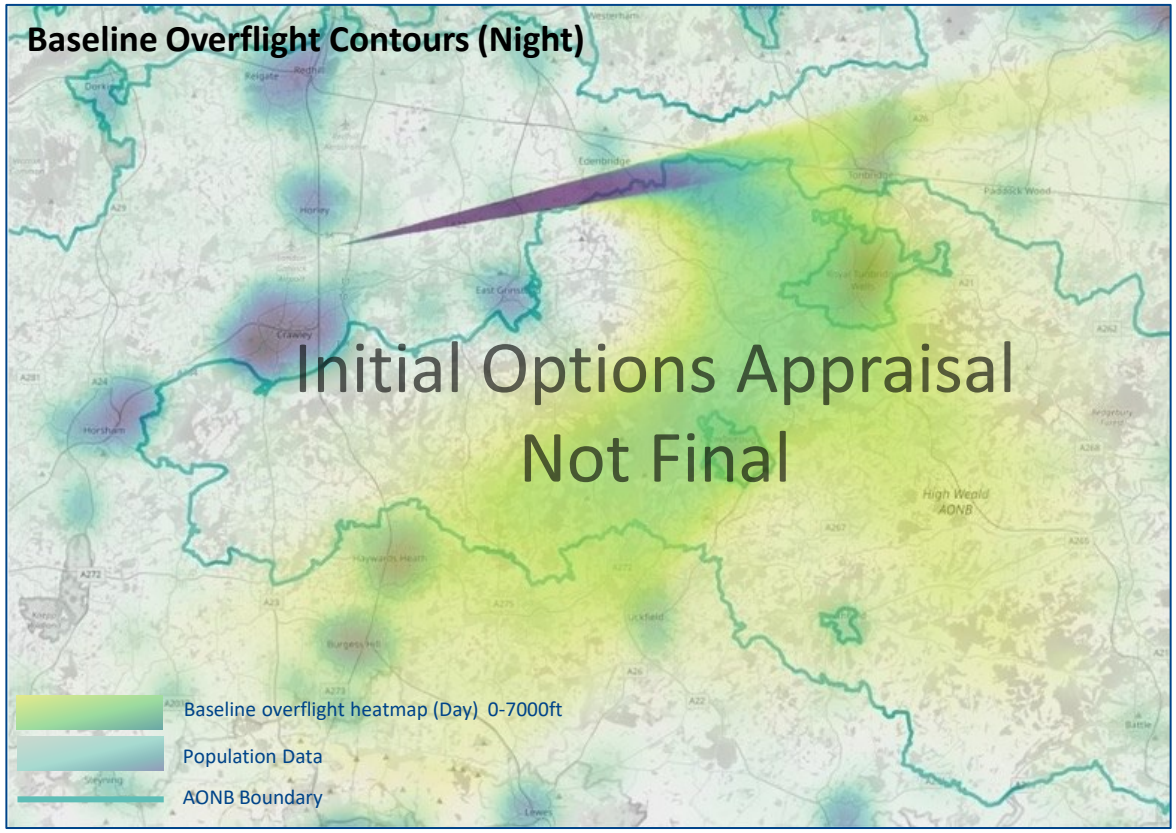
Airspace Modernisation Strategy

Doing nothing with Gatwick's arrivals will constrain options for Gatwick's SIDs and the wider LTMA network design. No change to arrivals at Gatwick will inhibit AMS benefits associated with the wider programme.

Safety

At the current traffic levels there are no safety concerns however future traffic growth could lead to increased complexity and workload for ATC and Pilots. This could lead to traffic levels within the LTMA being capped or increased ground holding, in order to maintain safety.

Overflight Illustration



FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals Baseline

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	7244	n/a
LOAEL (Night)	3635	n/a
N65 (20)	5955	n/a
N60 (5)	11819	n/a

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	2.2	n/a

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*No change*

Economic	Qualitative Conclusion
Commercial Airlines	*No change*
General Aviation	*No change*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*No change*
GA Access	*No change*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*No change*

Costs	Qualitative Conclusion
Commercial Airlines Training	*No costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*No costs identified*
Airport / ANSP Deployment	*n/a*

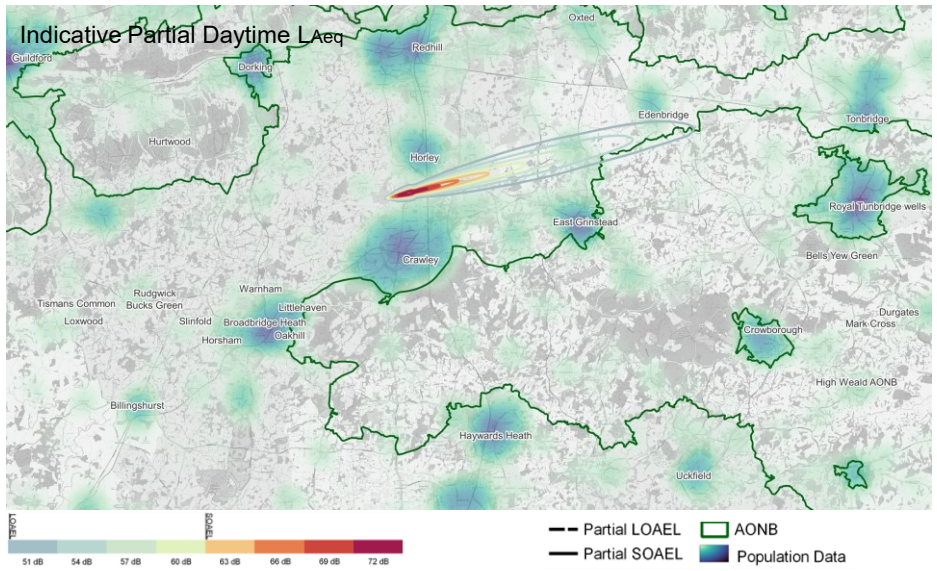
Option Name	Noise			Air Quality	Tranquillity (Overflight area km^2)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
Baseline	399727 / 340417	n/a	n/a	No change	906.9	0	0	n/a
Interdependencies, conflicts & trade-offs								
Some Gatwick arrivals share interdependencies with Heathrow and Biggin Hill however this mostly occurs above 7000ft within the network airspace. In the baseline scenarios, Gatwick's arrivals constrain Gatwick's SIDs - particularly the westerly left turn WIZAD SID which can only be used on a tactical basis.								

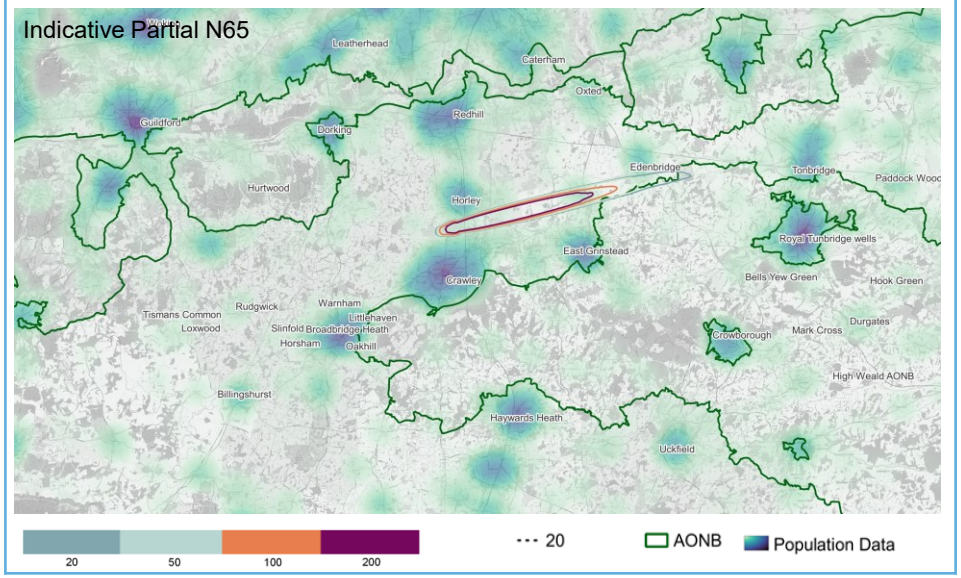
FASI-S ACP Initial Options Appraisal Dashboard

Option

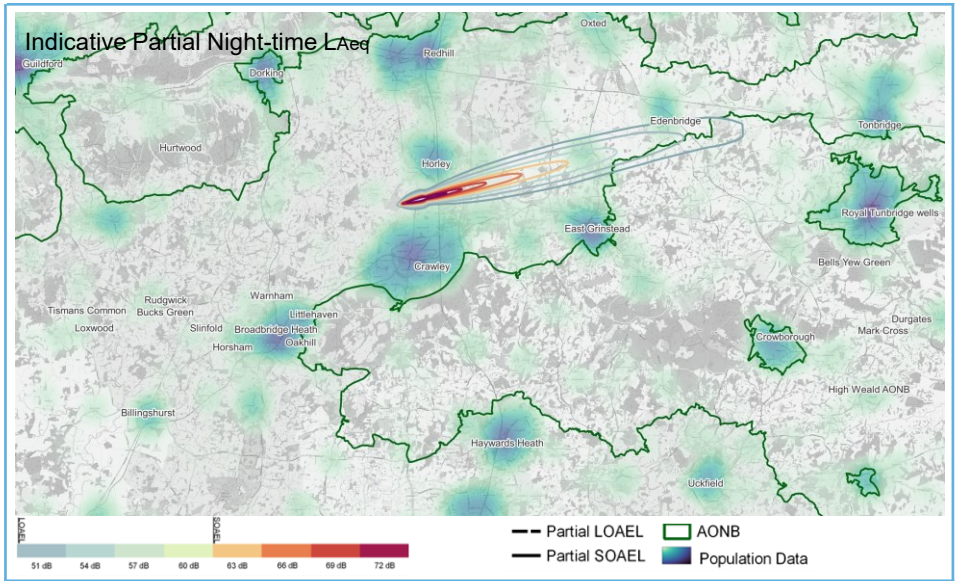
Westerly Arrivals Baseline

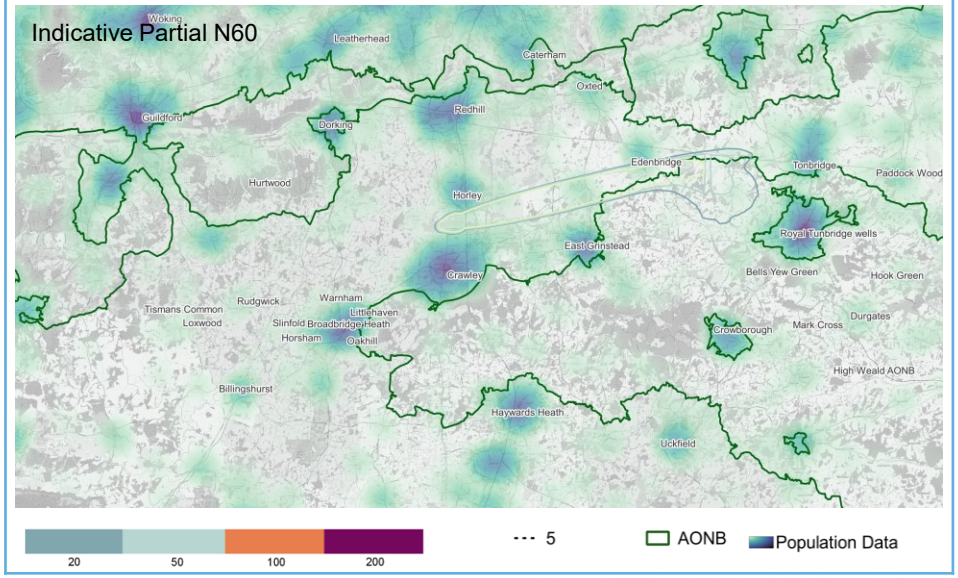
Day





Night





FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAA

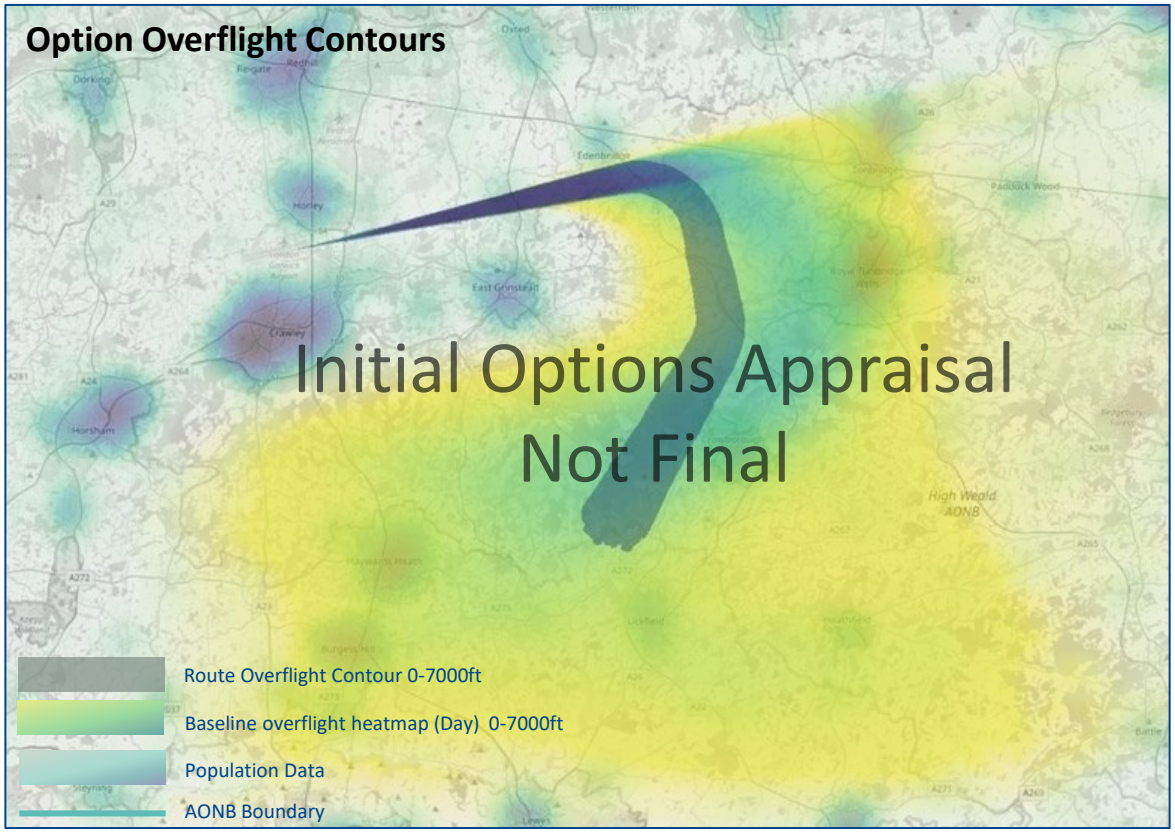
Description

This PBN arrival option joins the final approach at c.10nm. When developing this option there was a focus on meeting DP3 (limit adverse noise effects) and minimising total population overflown also considering DP1, DP2, DP5, DP7, DP8, DP9 and the AMS.

Noise

This option is located within the main arrival swathe however compared to the baseline a single PBN arrival transition has the potential to create significant concentration. This will be dependent on the level of vectoring also required which will be explored in further detail as part of Stage 3 should the option progress. It is expected that arrivals will achieve improved CDO performance which has the potential to improve noise.

Overflight Illustration



Airspace Modernisation Strategy

Supports the AMS through the implementation of PBN arrivals which would be for noise and environmental mitigation purposes as set out in the Government's Air Navigation Guidance. PBN arrivals are expected to be used in conjunction with an RMA as part of a wider system design where they could enable simplification, integration, safety and efficiency enhancements.

Safety

No IFP design issues are anticipated with this option. There is precedent for PBN to ILS procedures in the UK.

No safety concerns with the use of a single PBN approach transition onto final approach, assuming adequate separation from all other routes

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAA

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	7533	+289
LOAEL (Night)	3146	-489
N65 (20)	6064	+109
N60 (5)	11140	-679

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	4.3	+2.1 km²

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*No impacts expected*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Not expected to require additional CAS*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*No change expected*

Costs	Qualitative Conclusion
Commercial Airlines Training	*No costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

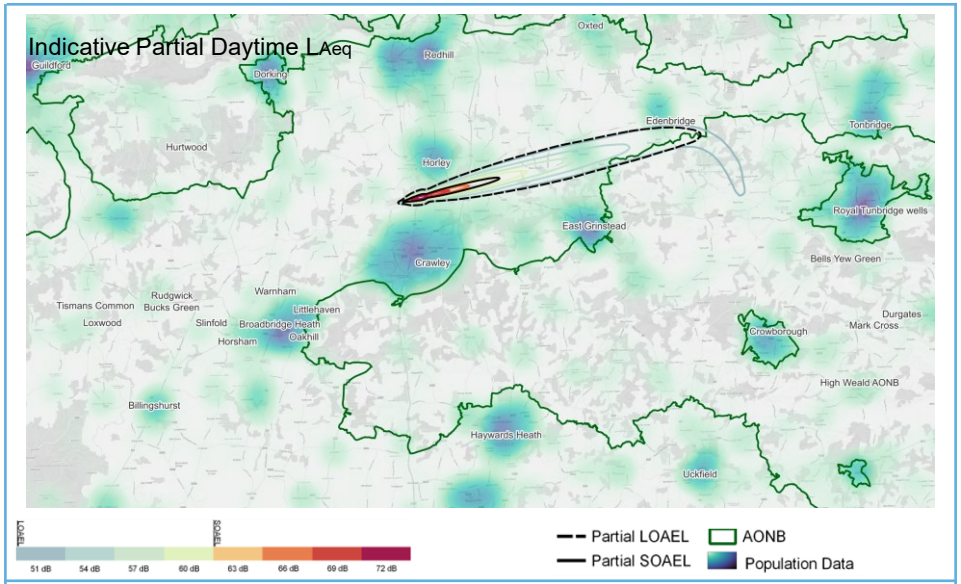
Option Name	Noise			Air Quality	Tranquillity (Overflight area km²)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAA	7280	125	173	No	62.4	0	0	✓ Yes
Interdependencies, conflicts & trade-offs								
Option has potential interactions with some departure routes however interactions are minimised with those departure routes that have been evolved to reduce interactions with arrivals.								

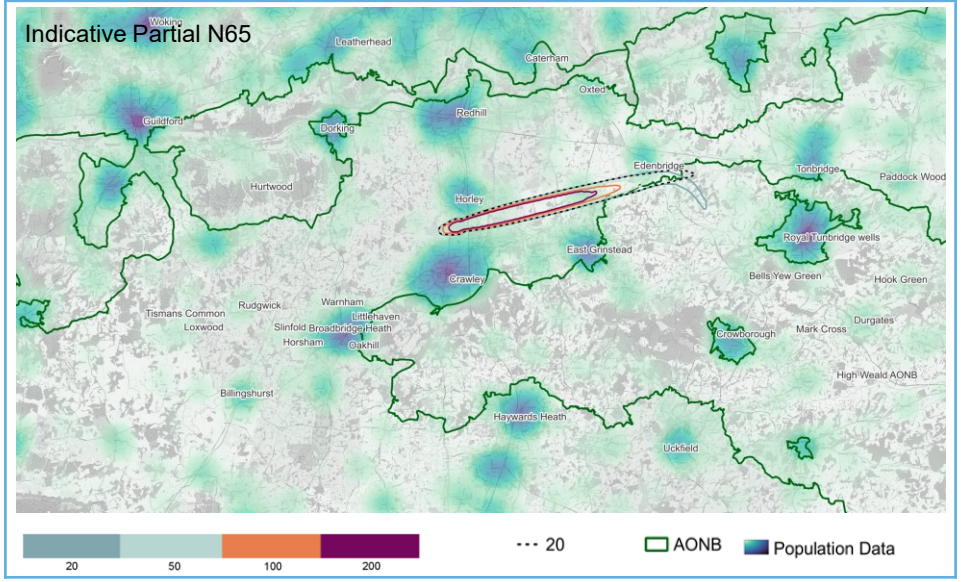
FASI-S ACP Initial Options Appraisal Dashboard

Option

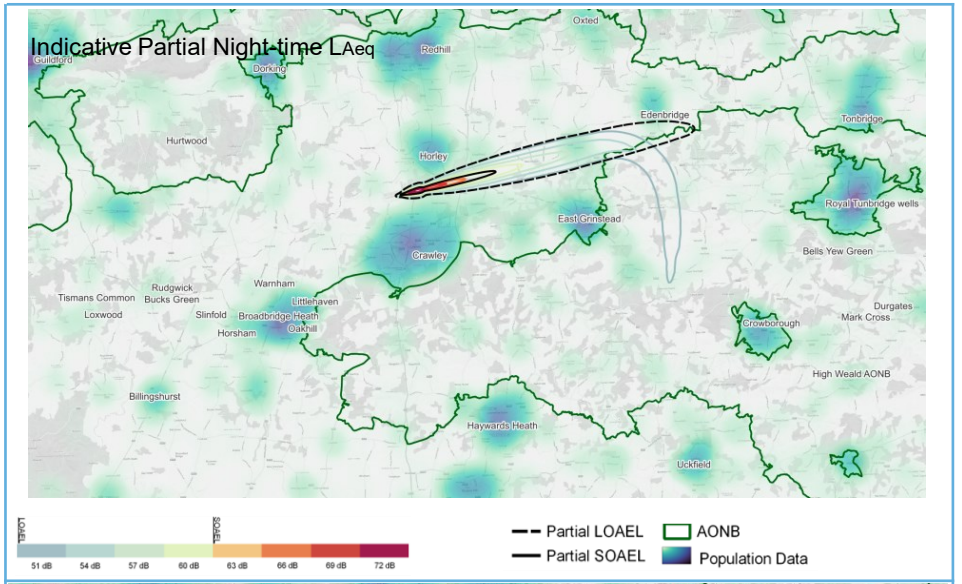
Westerly Arrivals: WAA

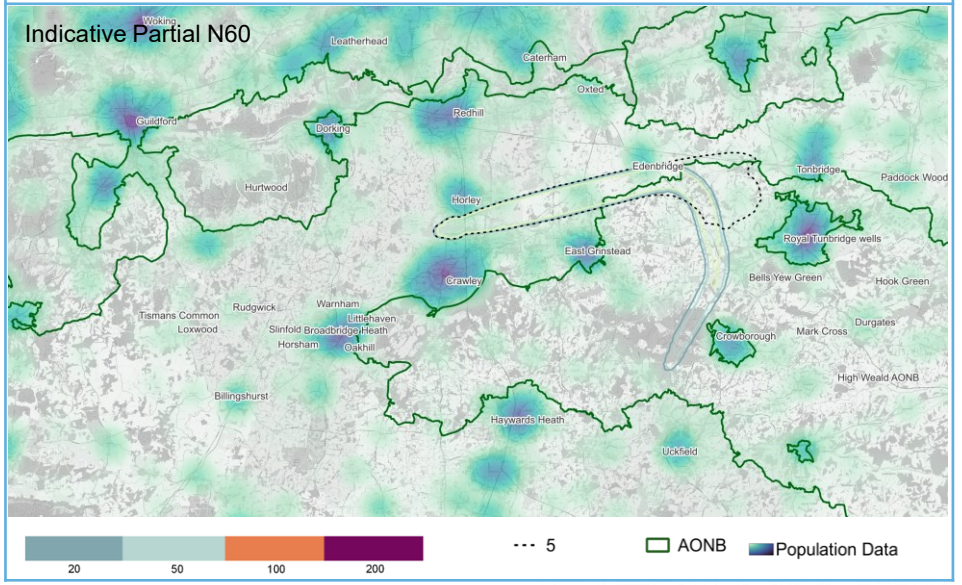
Day





Night





FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAC

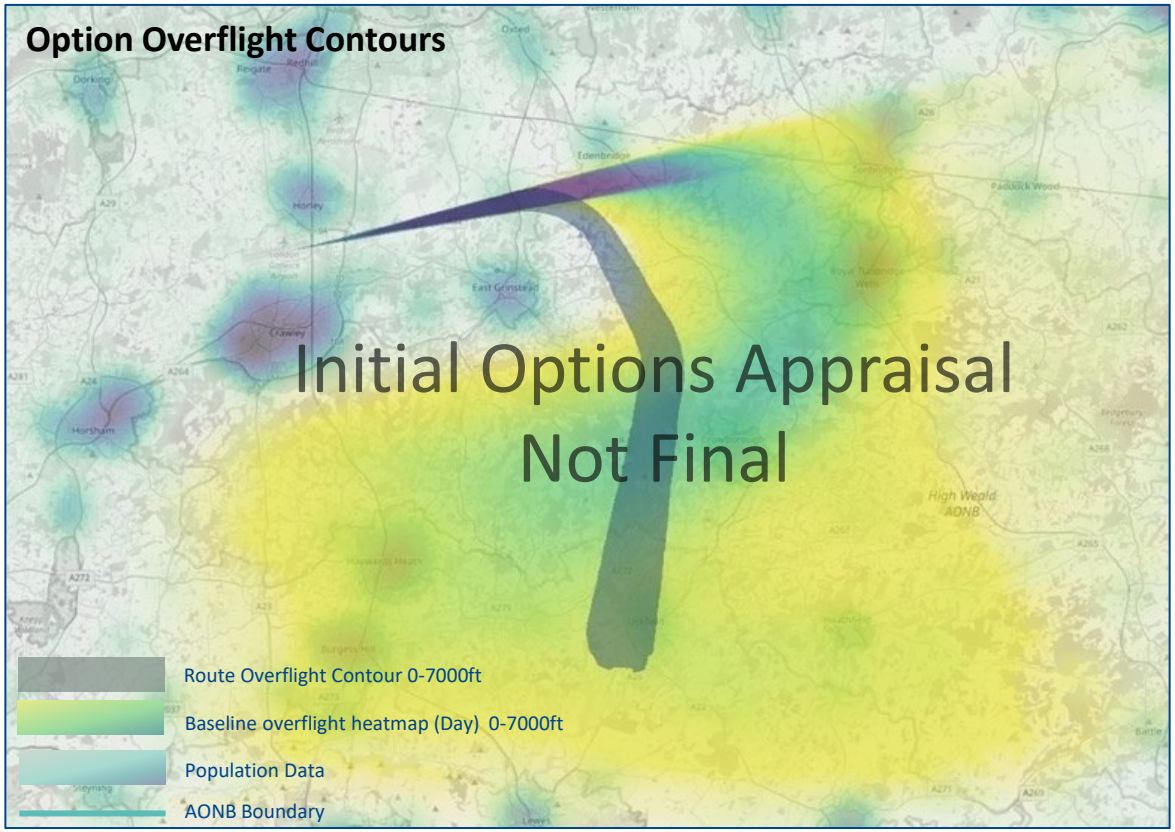
Description

This PBN arrival option joins the final approach at c.6.5nm. When developing this option there was a focus on meeting DP3 (limit adverse noise effects), DP6 (Optimise Use of Aircraft Capabilities) and minimising total population overflown whilst also considering DP1, DP2, DP4, DP5, DP7, DP8, DP9 and the AMS.

Noise

As this option cannot be operated as a PBN-ILS transition, the frequency it could be used is reduced and therefore noise benefits are unlikely to be realised compared to other options where a PBN-ILS transition is available. This option is outside of the existing airspace arrangements as it joins final approach closer than today, creating areas of new overflight compared to the baseline.
It is expected that arrivals will achieve improved CDO performance which has the potential to improve noise.

Overflight Illustration



Airspace Modernisation Strategy

Supports the AMS through the implementation of PBN arrivals which would be for noise and environmental mitigation purposes as set out in the Government's Air Navigation Guidance. PBN arrivals are expected to be used in conjunction with an RMA as part of wider a system design which could enable simplification, integration, safety and efficiency enhancements.

Safety

This option joins final approach at c.6.5nm which raises IFP design issues as a PBN to ILS transition.

No safety concerns with the use of a single PBN approach transition onto final approach, assuming adequate separation from all other routes

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAC

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	6872	-372
LOAEL (Night)	3237	-398
N65 (20)	5615	-340
N60 (5)	11787	-32

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	9.7	+7.5 km²

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*Impacts identified*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Not expected to require additional CAS*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*Impacts identified*

Costs	Qualitative Conclusion
Commercial Airlines Training	*No costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

LONDON GATWICK

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAC

Option Name	Noise			Air Quality	Tranquillity (Overflight area km²)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAC	19393	280	519	No	43.4	0	0	X No

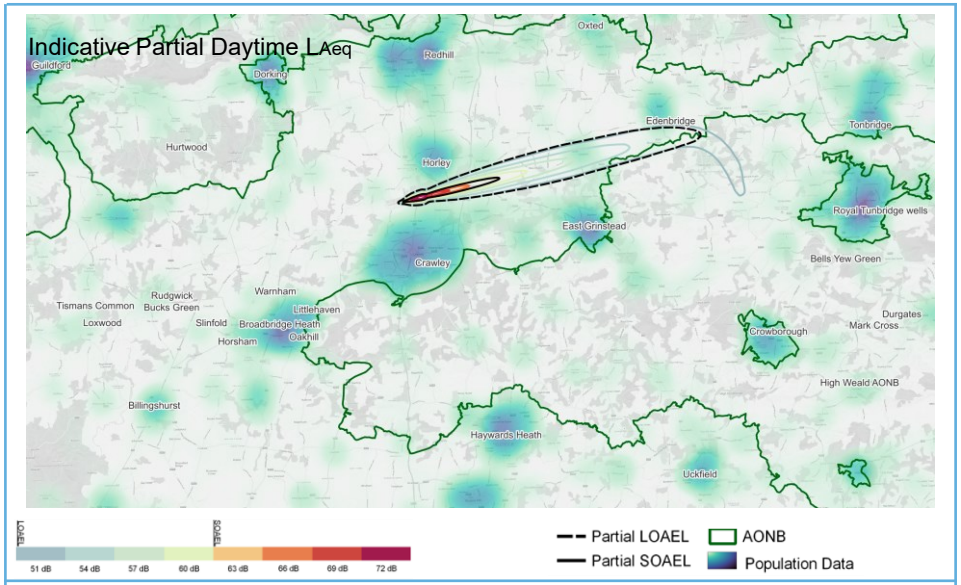
Interdependencies, conflicts & trade-offs
Although some westerly departure routes have been evolved to reduce interactions with arrivals, due to the position of the join onto final approach, further investigation would be required to resolve the interactions of this option with any left turn wrap around westerly departures. Options with shorter final approaches are more likely to have interactions with departures which may require resolution through reduced CCO/CDO performance.

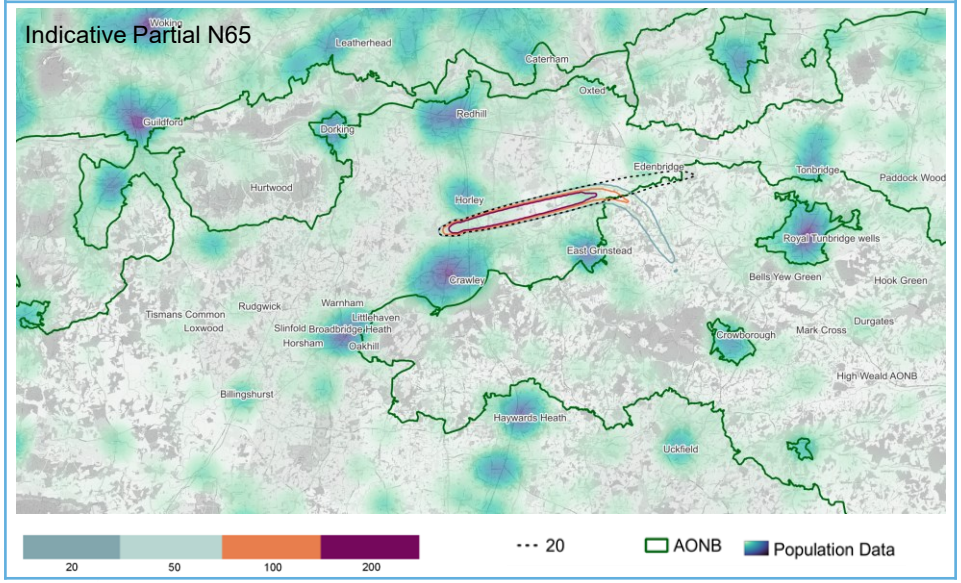
FASI-S ACP Initial Options Appraisal Dashboard

Option

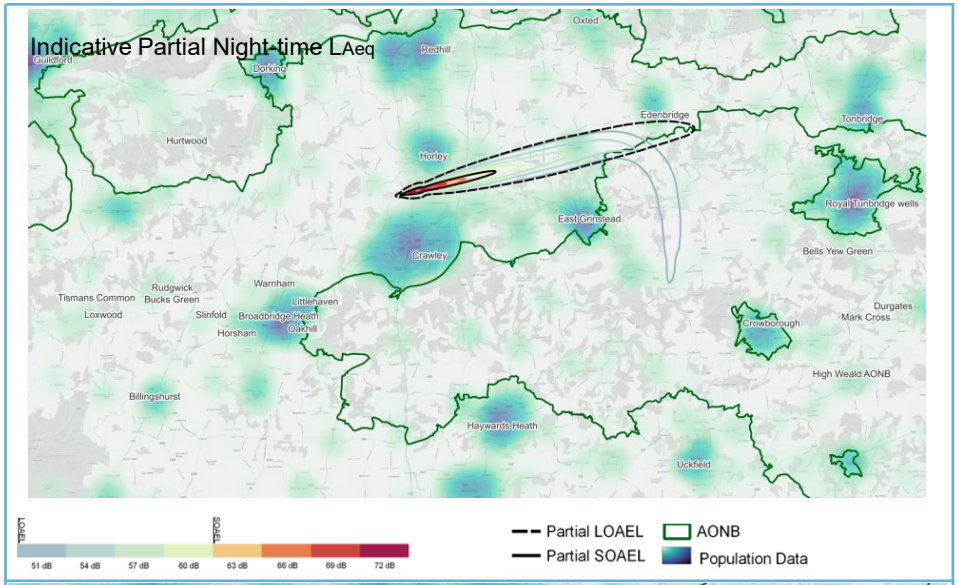
Westerly Arrivals: WAC

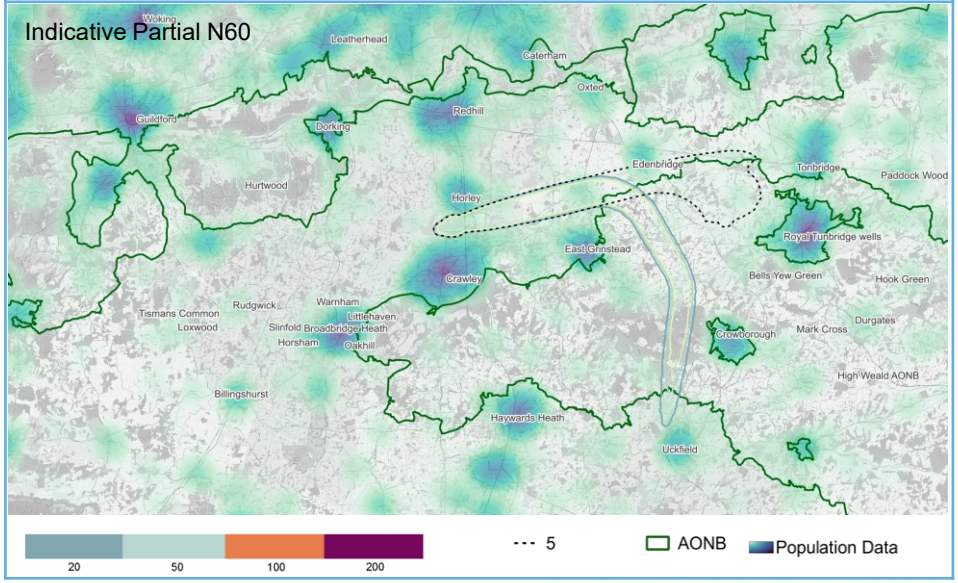
Day





Night





FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAD

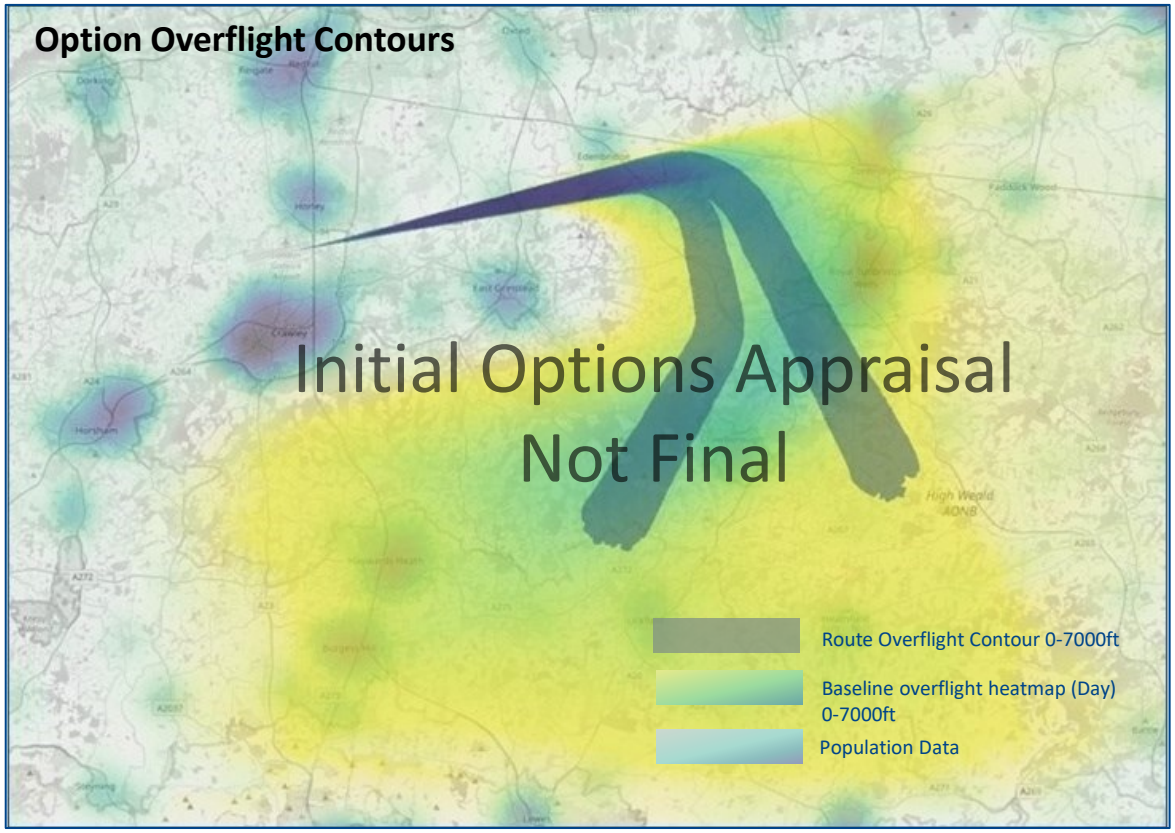
Description

These two arrival routes from the south join final approach at c.11nm and c.9.5nm.
When developing this option there was a focus on meeting DP3 (limit adverse noise effects), DP7 (Long term predictability and adaptability) and minimise total population overflown whilst also considering DP1, DP2, DP4, DP5, DP7, DP8, DP9 and the AMS.

Noise

The two routes within this option are located broadly within the baseline main swathe of concentration. At night, one route would introduce new overflight compared to the baseline as aircraft would join final approach under 10nm. Compared to the baseline, PBN arrival transitions have the potential to create significant concentration however this option offers some noise sharing. There may also be dispersal around the routes and this will be dependent on the level of vectoring required which will be explored in further detail as part of Stage 3 should the option progress. It is expected that arrivals will achieve improved CDO performance which has the potential to improve noise.

Overflight Illustration



Airspace Modernisation Strategy

Supports the AMS through the implementation of PBN arrivals which would be for noise and environmental mitigation purposes as set out in the Government's Air Navigation Guidance. PBN arrivals are expected to be used in conjunction with an RMA as part of wider a system design which could enable simplification, integration, safety and efficiency enhancements.

Safety

No IFP design issues are anticipated with this option.

The more approaches available. the higher the changes of a safety error by ATC or Pilots. In order to mitigate this risk, additional assurance work would be required with a safety argument generated. This expected to be achievable but would require further investigation as part of Stage 3 activity should this option progress.

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAD

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	7314	+70
LOAEL (Night)	3146	-489
N65 (20)	5925	-30
N60 (5)	14299	+2480

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	1.6	+0.6 km²

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*No impacts expected*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Not expected to require additional CAS*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*No change expected*

Costs	Qualitative Conclusion
Commercial Airlines Training	*No costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

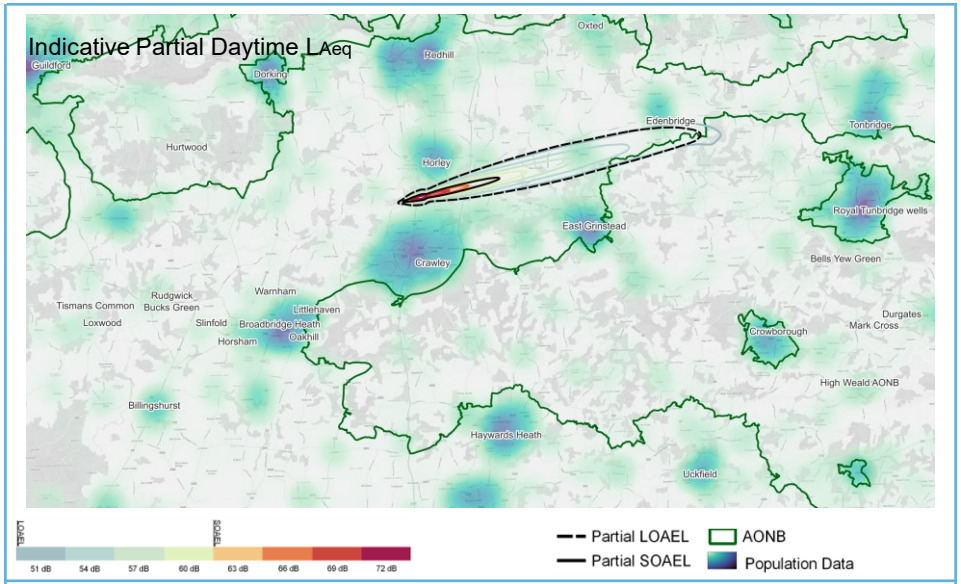
Option Name	Noise			Air Quality	Tranquillity (Overflight area km^2)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAD	14980	125	173	No	121.8	0	0	Yes
Interdependencies, conflicts & trade-offs								
Routes from the south have potential interactions with some departure routes however interactions are minimised with those departure routes that have been evolved to reduce interactions with arrivals. The eastern most route from the south may require refinement from 5000ft+ to integrate with the airspace above 7000ft; this would be explored in further detail should the option progress.								

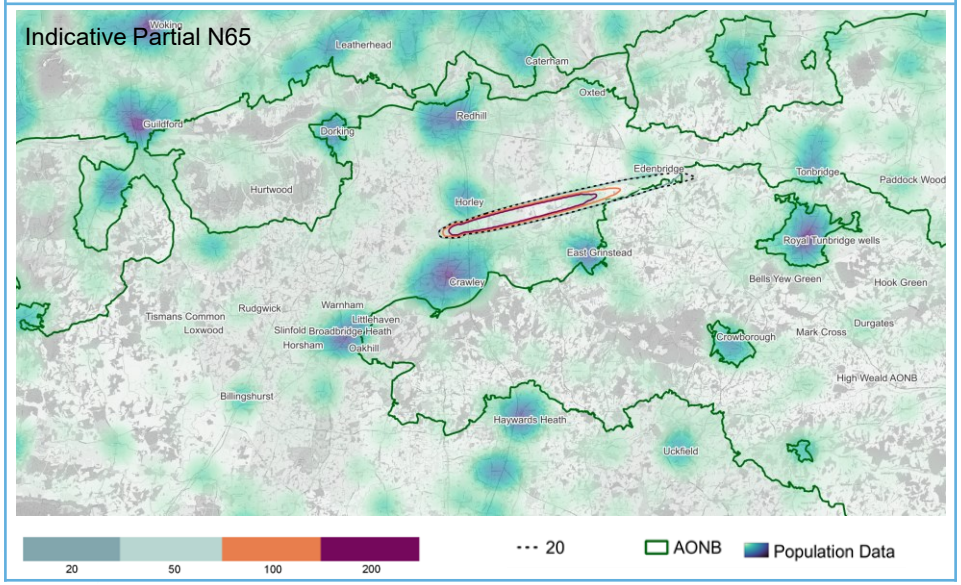
FASI-S ACP Initial Options Appraisal Dashboard

Option

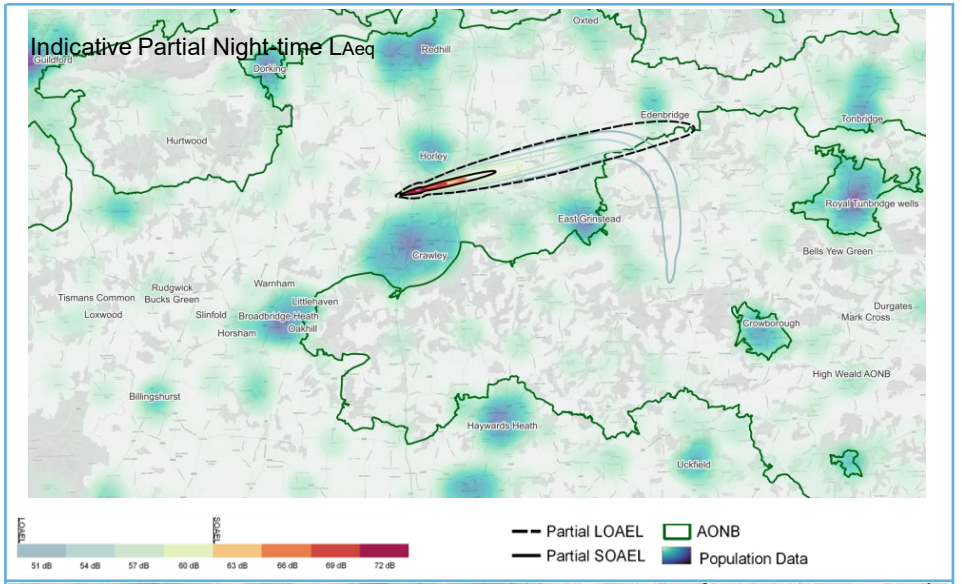
Westerly Arrivals: WAD

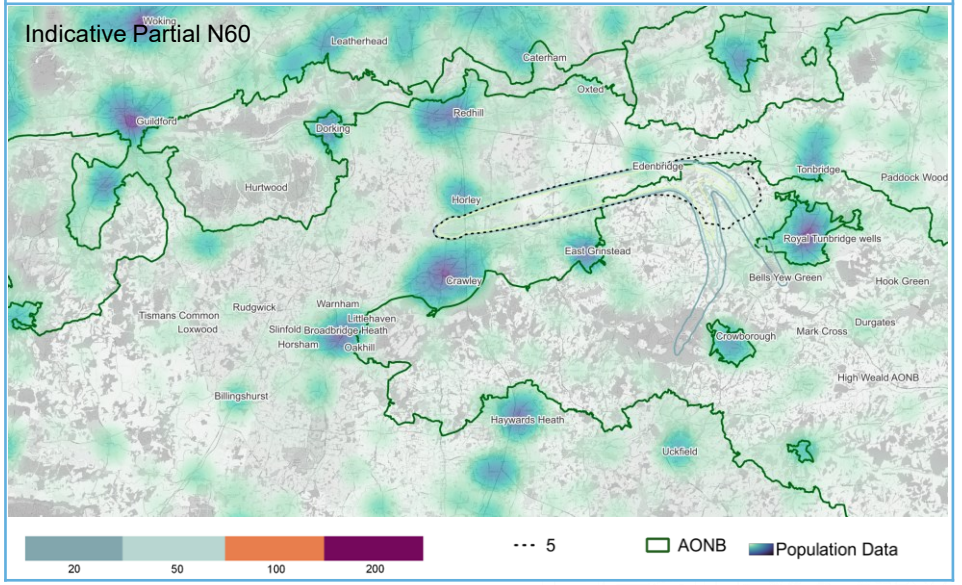
Day





Night





FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAE

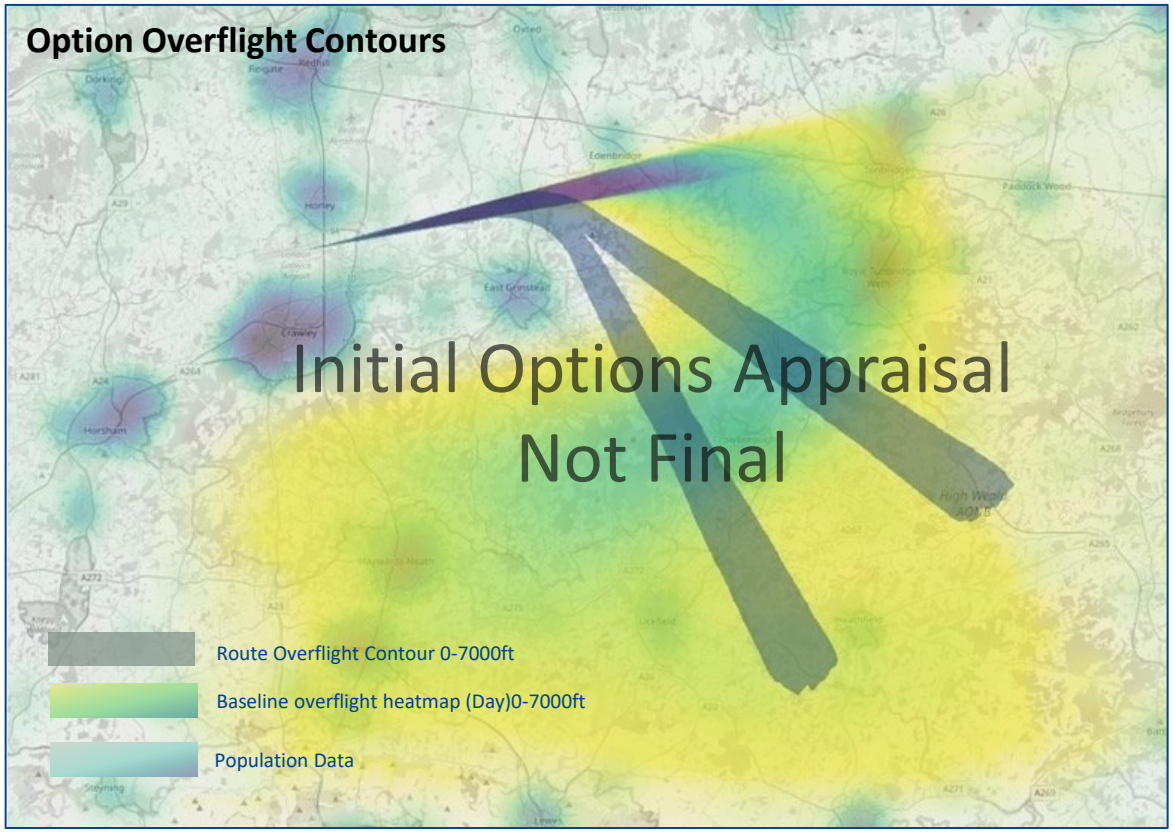
Description

These two arrival routes from the south join final approach at c.6nm and c.5.5nm.
When developing this option there was a focus on meeting DP3 (limit adverse noise effects), DP7 (Long term predictability and adaptability) and minimise total population overflown whilst also considering DP1, DP2, DP4, DP5, DP7, DP8, DP9 and the AMS.

Noise

Both routes within this option cannot be operated as a PBN-ILS transition, which means the frequency they could be used is reduced and therefore noise benefits are unlikely to be realised compared to other options where a PBN-ILS transition is available. This option is outside of the existing airspace arrangements as it joins final approach closer than today, creating areas of new overflight compared to the baseline.
Compared to the baseline, PBN arrival transitions have the potential to create significant concentration however this option offers some noise sharing. There may also be dispersal around the routes and this will be dependent on the level of vectoring required which will be explored in further detail as part of Stage 3 should the option progress. It is expected that arrivals will achieve improved CDO performance which has the potential to improve noise.

Overflight Illustration



Airspace Modernisation Strategy

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Safety

This option joins final approach at c.5.5nm and 6.5nm which raises IFP design issues as a PBN to ILS transition. The more approaches available the higher the changes of a safety error by ATC or Pilots. In order to mitigate this risk, additional assurance work would be required with a safety argument generated. This expected to be achievable but would require further investigation as part of Stage 3 activity should this option progress.

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAE

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	7037	-207
LOAEL (Night)	2341	-1294
N65 (20)	6575	+620
N60 (5)	12201	+382

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	8.9	+6.7 km²

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*Impacts identified*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Not expected to require additional CAS*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*Impacts identified*

Costs	Qualitative Conclusion
Commercial Airlines Training	*No costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

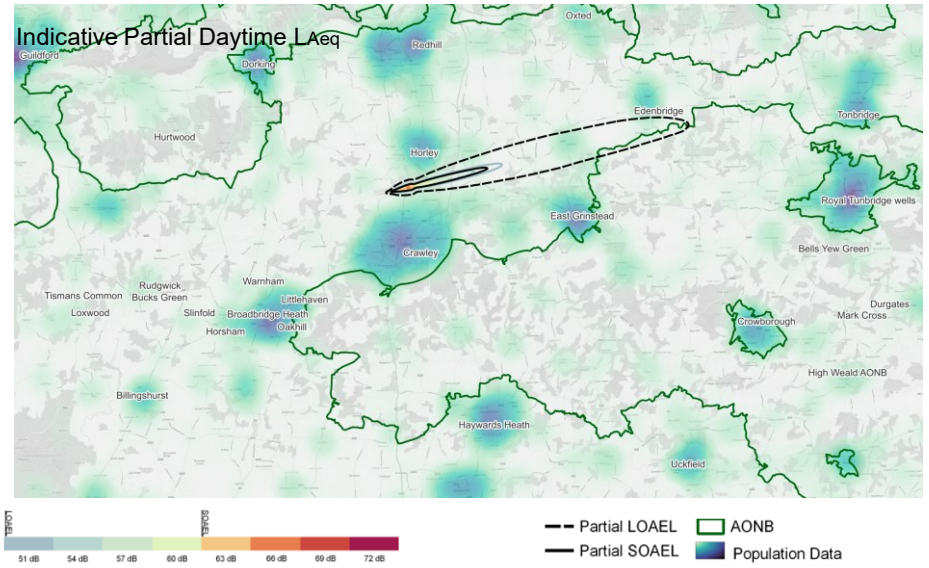
Option Name	Noise			Air Quality	Tranquillity (Overflight area km^2)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAE	12516	1585	2264	No	137.3	0	0	No
Interdependencies, conflicts & trade-offs								
Although some westerly departure routes have been evolved to reduce interactions with arrivals, due to the position of the join onto final approach, further investigation would be required to resolve the interactions of this option with any left turn wrap around westerly departures. Options with shorter final approaches are more likely to have interactions with departures which may require resolution through reduced CCO/CDO performance.								

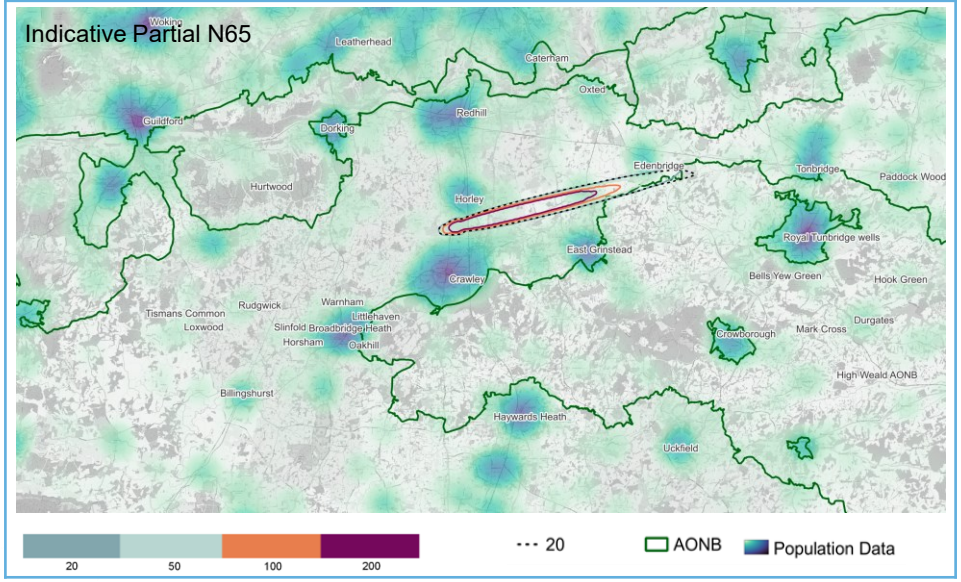
FASI-S ACP Initial Options Appraisal Dashboard

Option

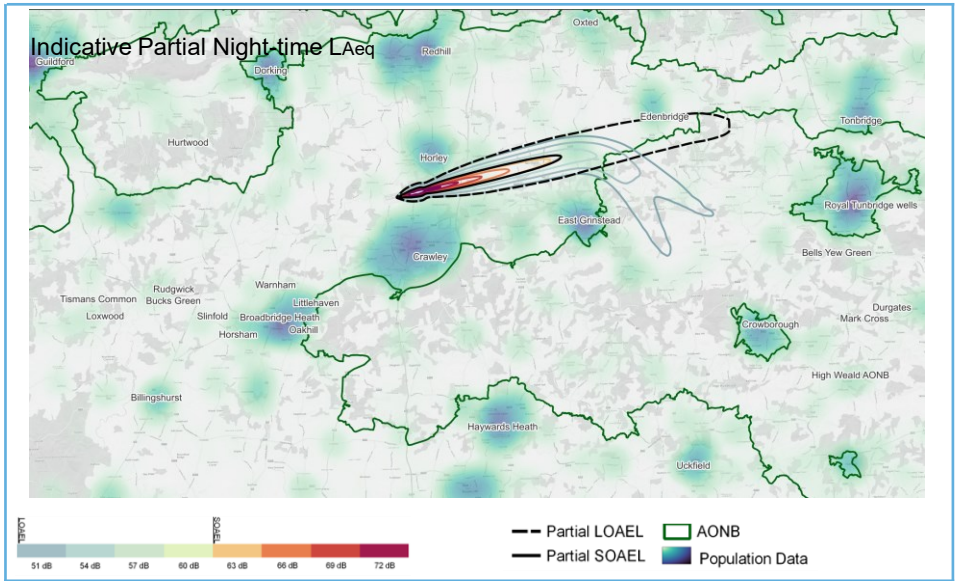
Westerly Arrivals: WAE

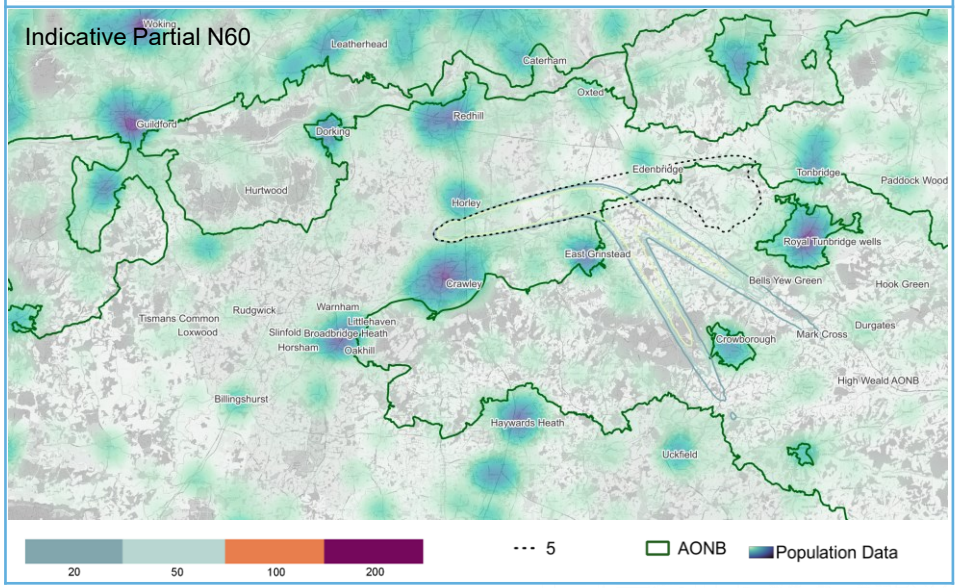
Day





Night





FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAF

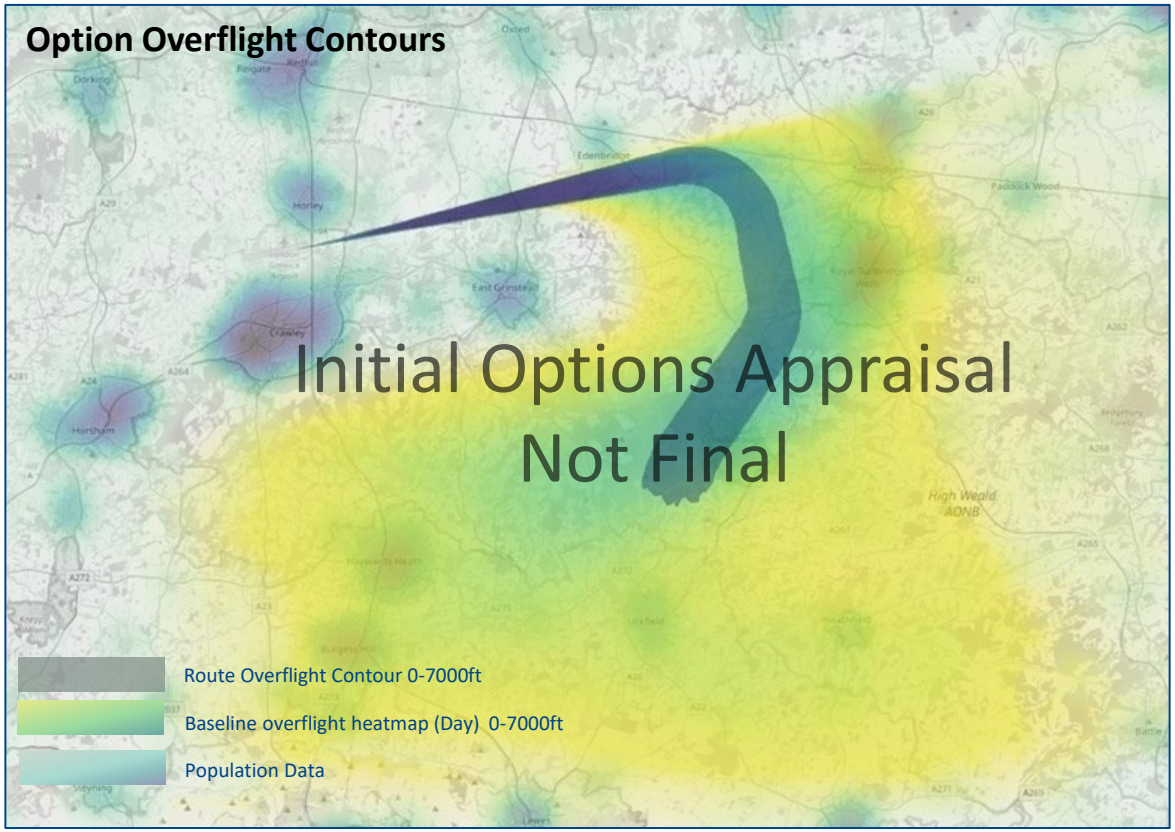
Description

This PBN arrival option joins the final approach at c.11.5nm. When developing this option there was a focus on meeting DP3 (limit adverse noise effects) and minimising population newly overflown whilst also considering DP1, DP2, DP4, DP5, DP7, DP8, DP9 and the AMS.

Noise

This option is located within the main arrival swathe however compared to the baseline a single PBN arrival transition has the potential to create significant concentration. This will be dependent on the level of vectoring also required which will be explored in further detail as part of Stage 3 should the option progress. It is expected that arrivals will achieve improved CDO performance which has the potential to improve noise.

Overflight Illustration



Airspace Modernisation Strategy

Supports the AMS through the implementation of PBN arrivals which would be for noise and environmental mitigation purposes as set out in the Government's Air Navigation Guidance. PBN arrivals are expected to be used in conjunction with an RMA as part of a wider system design where they could enable simplification, integration, safety and efficiency enhancements.

Safety

No IFP design issues are anticipated with this option. There is precedent for PBN to ILS procedures in the UK.

No safety concerns with the use of a single PBN approach transition onto final approach, assuming adequate separation from all other routes

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAF

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	7386	+142
LOAEL (Night)	3146	-489
N65 (20)	5923	-33
N60 (5)	15094	+3275

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	2.6	+0.4 km²

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*No impacts expected*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Not expected to require additional CAS*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*No change expected*

Costs	Qualitative Conclusion
Commercial Airlines Training	*No costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

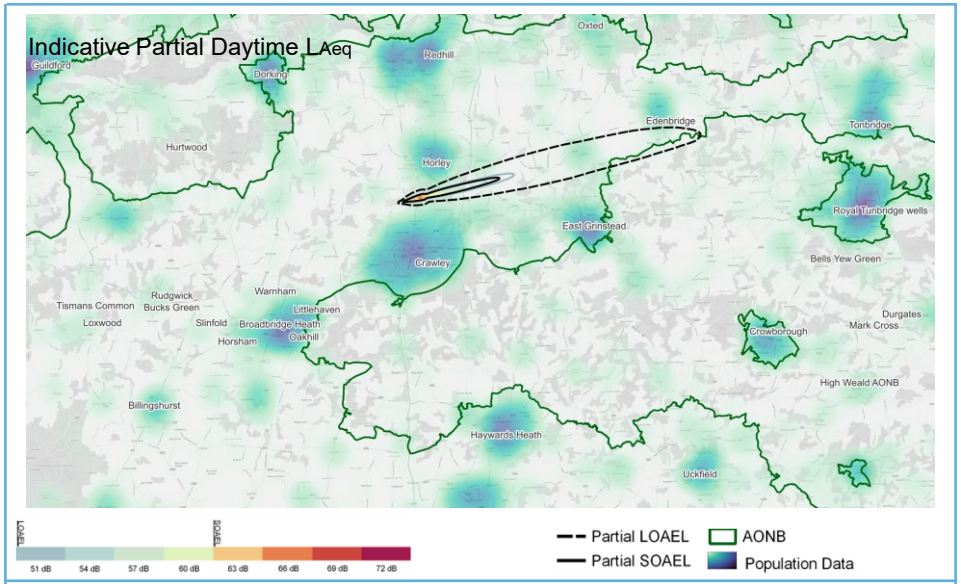
Option Name	Noise			Air Quality	Tranquillity (Overflight area km^2)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAF	15779	125	173	No	63.9	0	0	Yes
Interdependencies, conflicts & trade-offs								
Option has potential interactions with some departure routes however interactions are minimised with those departure routes that have been evolved to reduce interactions with arrivals.								

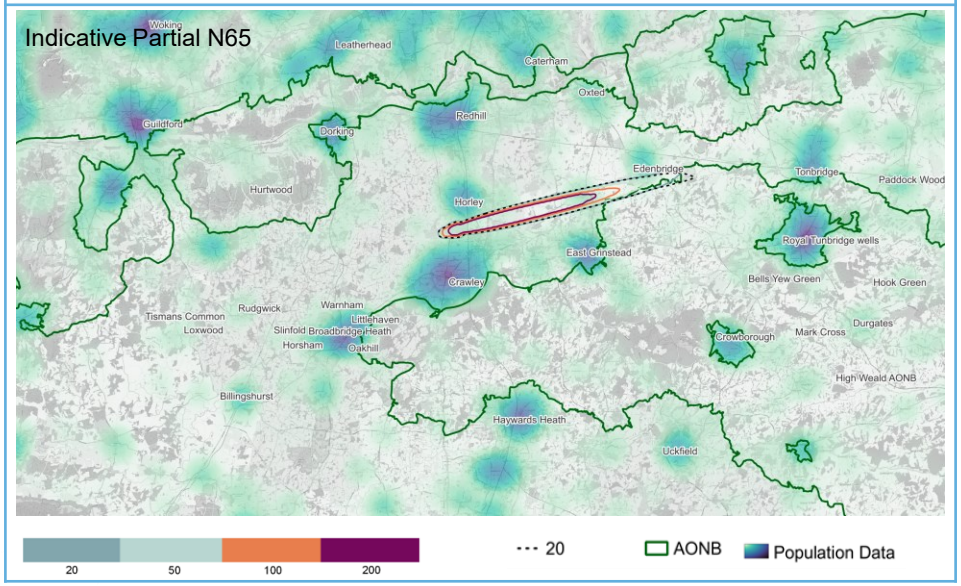
FASI-S ACP Initial Options Appraisal Dashboard

Option

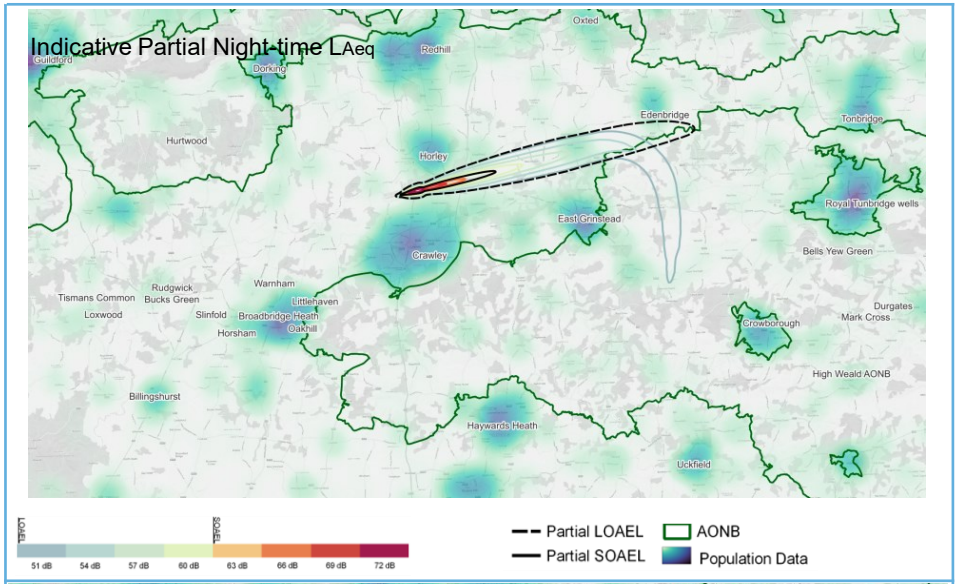
Westerly Arrivals: WAF

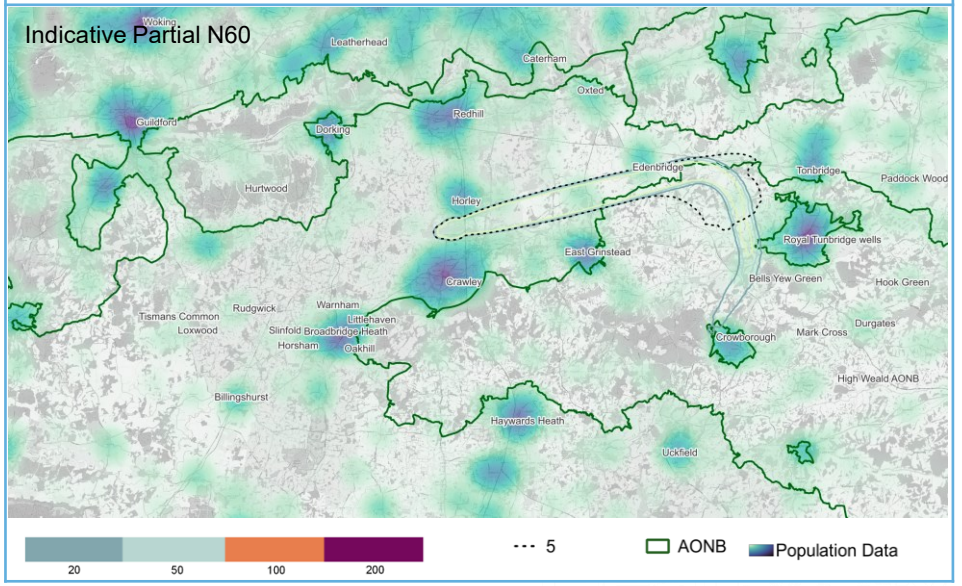
Day





Night





FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAH

Description

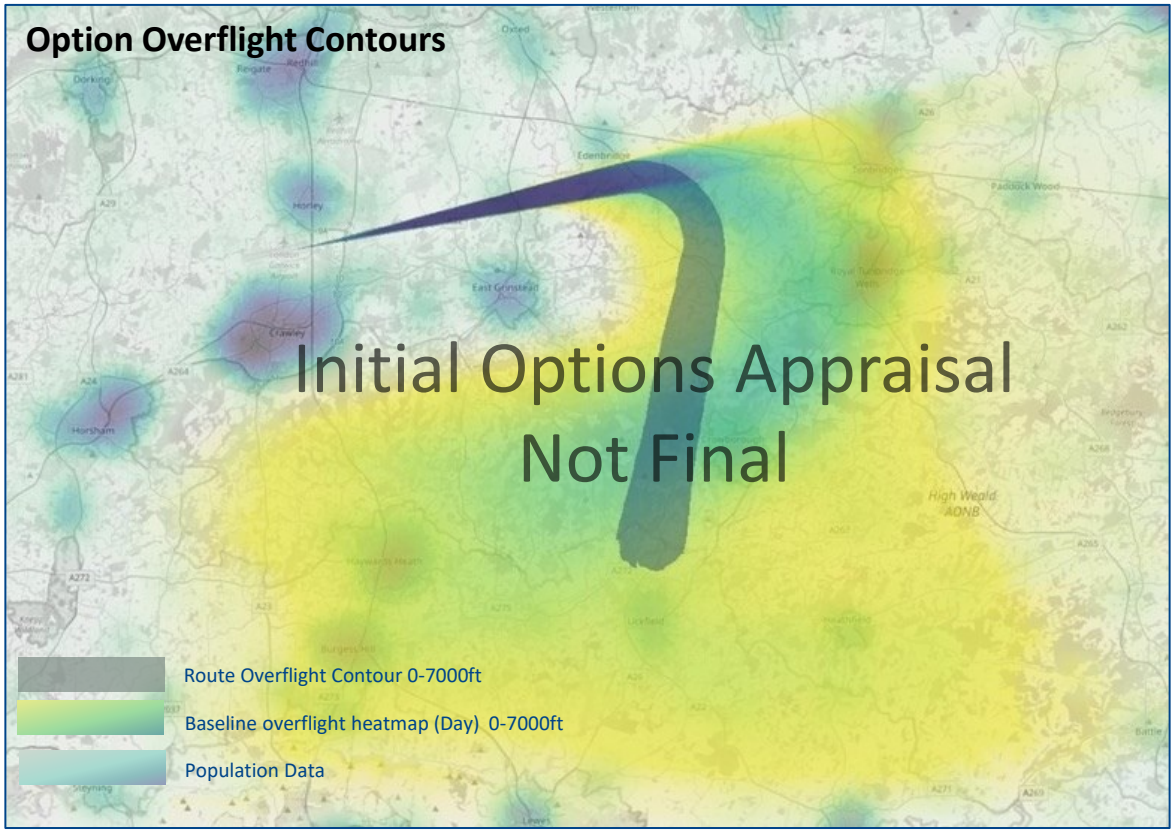
This PBN arrival option joins the final approach at c.9.5nm. When developing this option there was a focus on meeting DP3 (limit adverse noise effects), DP6 (Optimise Use of Aircraft Capabilities) and minimising population newly overflown whilst also considering DP1, DP2, DP4, DP5, DP7, DP8, DP9 and the AMS.

Noise

This option offers a lateral change in approach compared to the baseline however large parts of the option remain within the baseline swathe including the turn onto final approach.
At night, this option would introduce some new overflight compared to the baseline as aircraft would join final approach under 10nm.

Compared to the baseline, a single PBN arrival transition has the potential to create significant concentration. This will be dependent on the level of vectoring also required which will be explored in further detail as part of Stage 3 should the option progress. It is expected that arrivals will achieve improved CDO performance which has the potential to improve noise.

Overflight Illustration



Airspace Modernisation Strategy

Supports the AMS through the implementation of PBN arrivals which would be for noise and environmental mitigation purposes as set out in the Government's Air Navigation Guidance. PBN arrivals are expected to be used in conjunction with an RMA as part of a wider system design where they could enable simplification, integration, safety and efficiency enhancements.

Safety

No IFP design issues are anticipated with this option. There is precedent for PBN to ILS procedures in the UK.

No safety concerns with the use of a single PBN approach transition onto final approach, assuming adequate separation from all other routes

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAH

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	7389	+667
LOAEL (Night)	3069	-91
N65 (20)	5589	+5,785
N60 (5)	11052	+2,028

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	4.6	+2.4 km²

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*No impacts expected*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Not expected to require additional CAS*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*No change expected*

Costs	Qualitative Conclusion
Commercial Airlines Training	*No costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

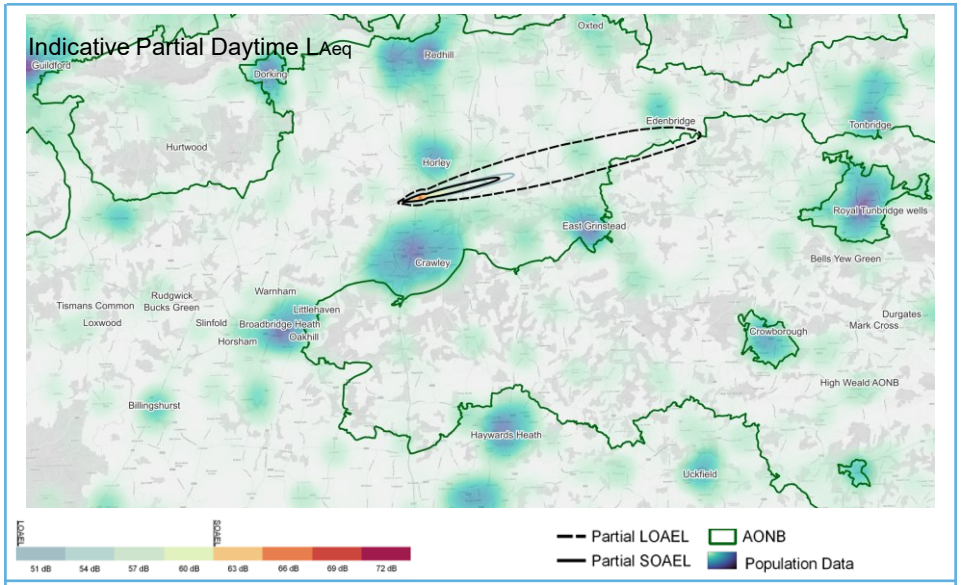
Option Name	Noise			Air Quality	Tranquillity (Overflight area km^2)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAH	7696	125	173	No	58.8	0	0	Yes
Interdependencies, conflicts & trade-offs								
Option has potential interactions with some departure routes however interactions are minimised with those departure routes that have been evolved to reduce interactions with arrivals.								

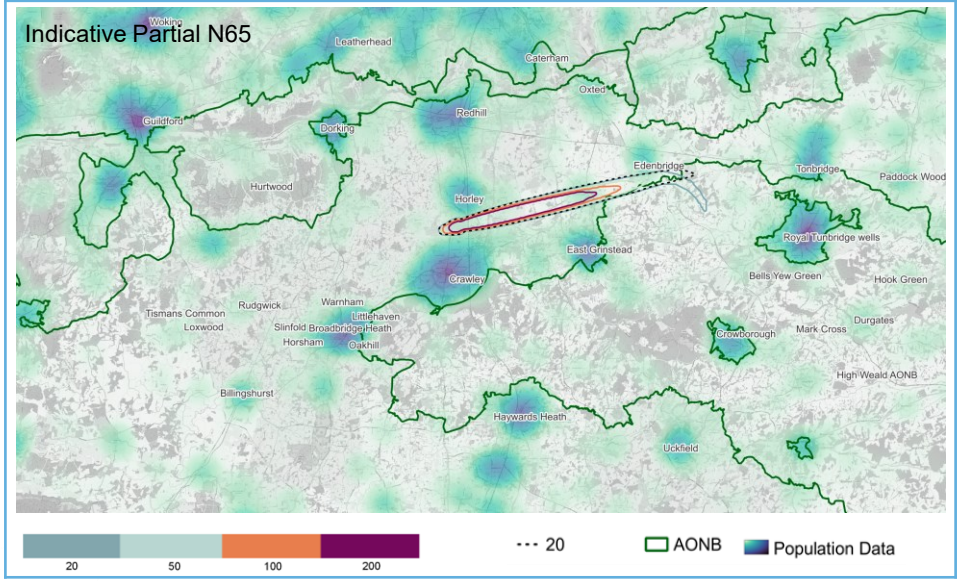
FASI-S ACP Initial Options Appraisal Dashboard

Option

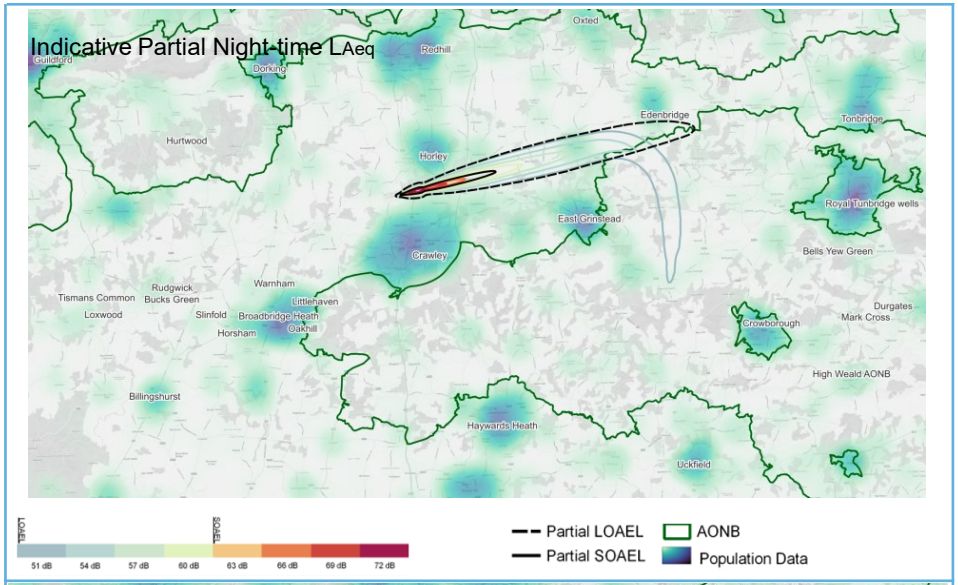
Westerly Arrivals: WAH

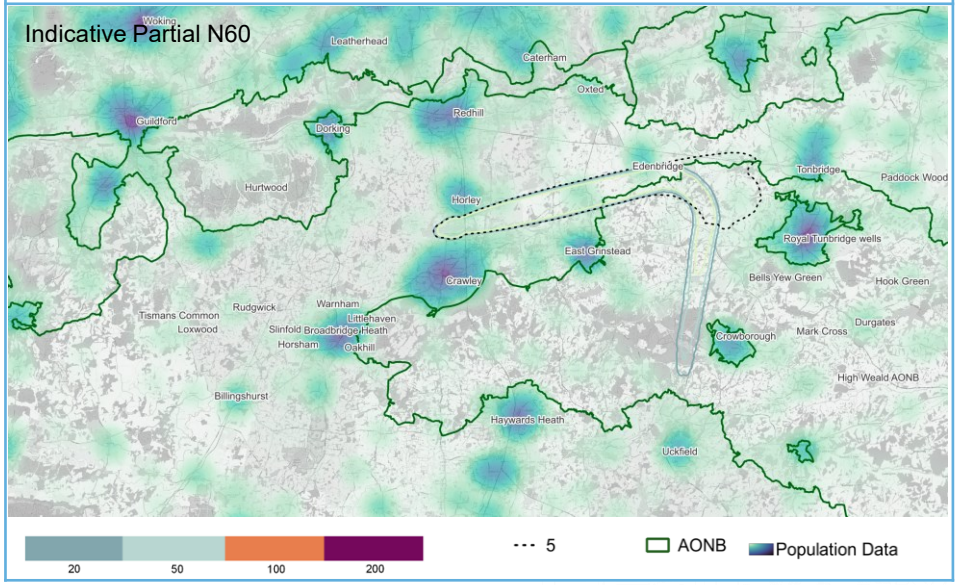
Day





Night





FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAI

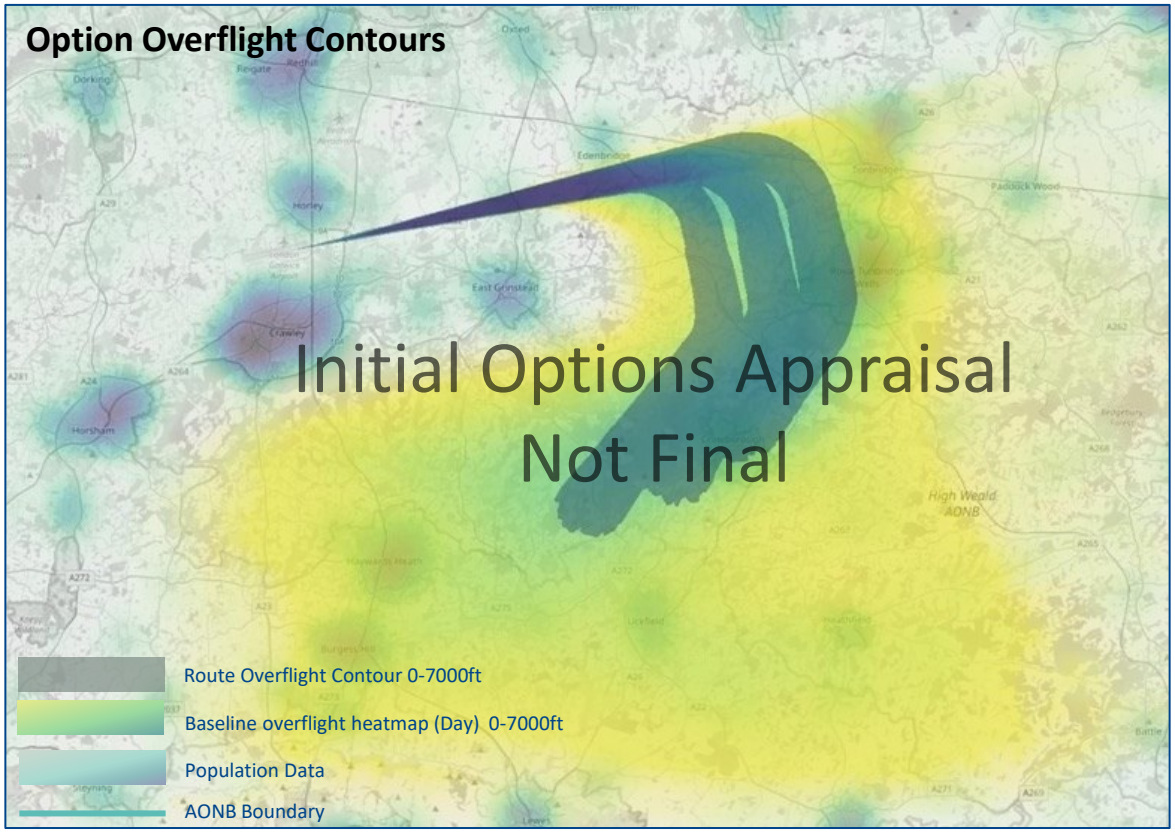
Description

This option offers three PBN arrivals which could be used in a respite configuration. The routes join the final approach at c.9.5nm, c.11.5nm and c.13nm. When developing this option there was a focus on meeting DP3 (limit adverse noise effects), DP7 (Long term predictability and adaptability) and minimising population newly overflown whilst also considering DP1, DP2, DP4, DP5, DP7, DP8, DP9 and the AMS.

Noise

The three routes within this option are located within the main arrival swathe however compared to the baseline, PBN arrival transitions have the potential to create significant concentration however this option offers some noise sharing. At night, one route would introduce new overflight compared to the baseline as aircraft would join final approach under 10nm. The initial sections of the approach have small areas of overlap in the overflight contours which could affect respite benefits. Should this option progress this could be refined as part of the process of linking the designs to the airspace above 7000ft. There may also be dispersal around the routes and this will be dependent on the level of vectoring required which will be explored in further detail as part of Stage 3 should the option progress. It is expected that arrivals will achieve improved CDO performance which has the potential to improve noise.

Overflight Illustration



Airspace Modernisation Strategy

Supports the AMS through the implementation of PBN arrivals which would be for noise and environmental mitigation purposes as set out in the Government's Air Navigation Guidance. PBN arrivals are expected to be used in conjunction with an RMA as part of wider a system design which could enable simplification, integration, safety and efficiency enhancements.

Safety

No IFP design issues are anticipated with this option.

The more approaches available the higher the changes of a safety error by ATC or Pilots. In order to mitigate this risk, additional assurance work would be required with a safety argument generated. This expected to be achievable but would require further investigation as part of Stage 3 activity should this option progress.

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAI

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	7071	-173
LOAEL (Night)	3237	-398
N65 (20)	5904	-51
N60 (5)	12702	+883

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	2.2	+0 km²

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*No impacts expected*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Not expected to require additional CAS*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*No change expected*

Costs	Qualitative Conclusion
Commercial Airlines Training	*No costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

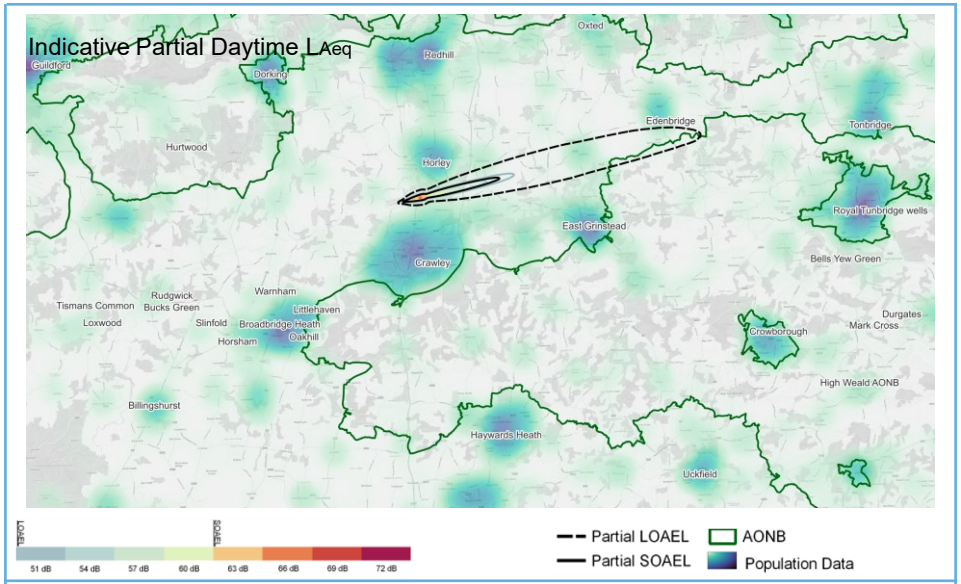
Option Name	Noise			Air Quality	Tranquillity (Overflight area km^2)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAI	48409	125	173	No	149.5	0	0	Yes
Interdependencies, conflicts & trade-offs								
Option has potential interactions with some departure routes however interactions are minimised with those departure routes that have been evolved to reduce interactions with arrivals.								

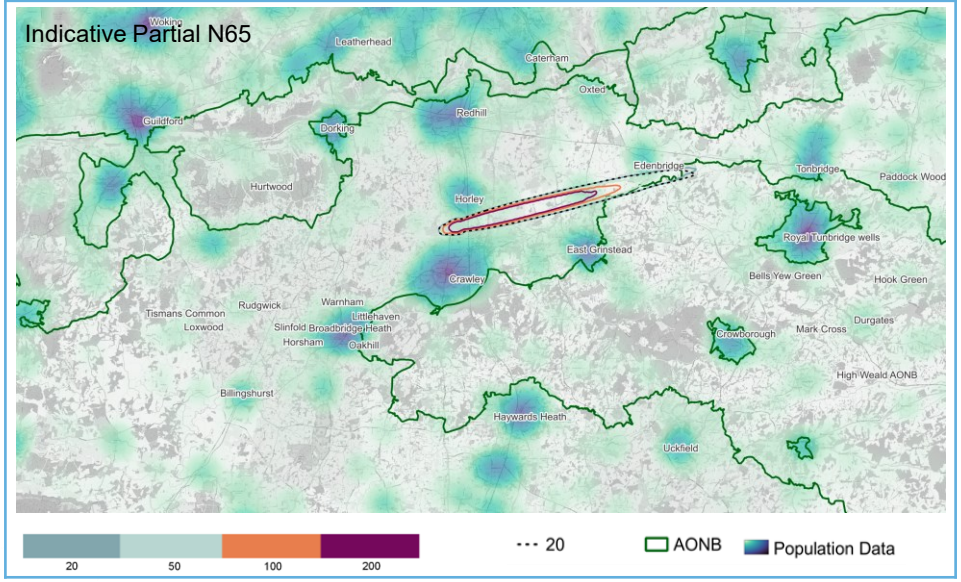
FASI-S ACP Initial Options Appraisal Dashboard

Option

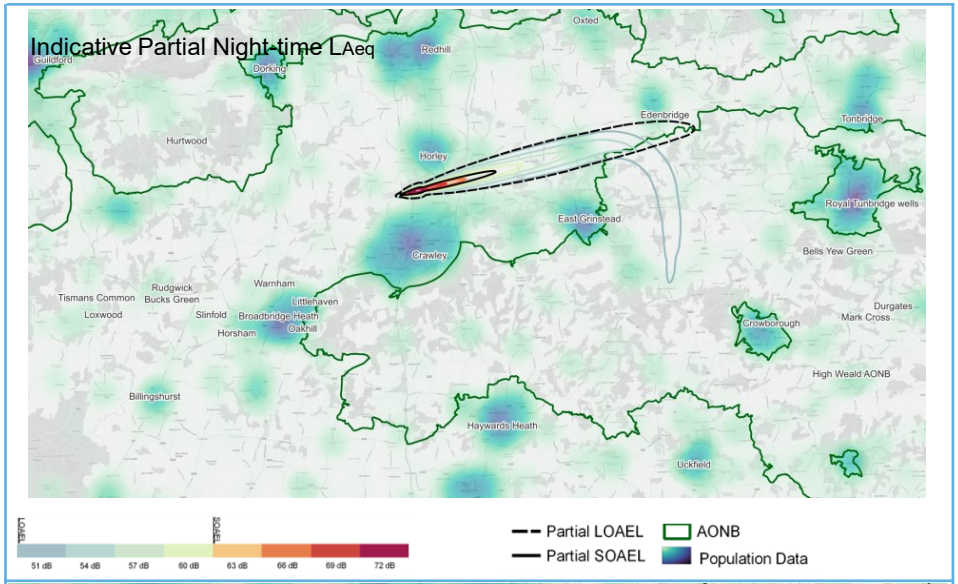
Westerly Arrivals: WAI

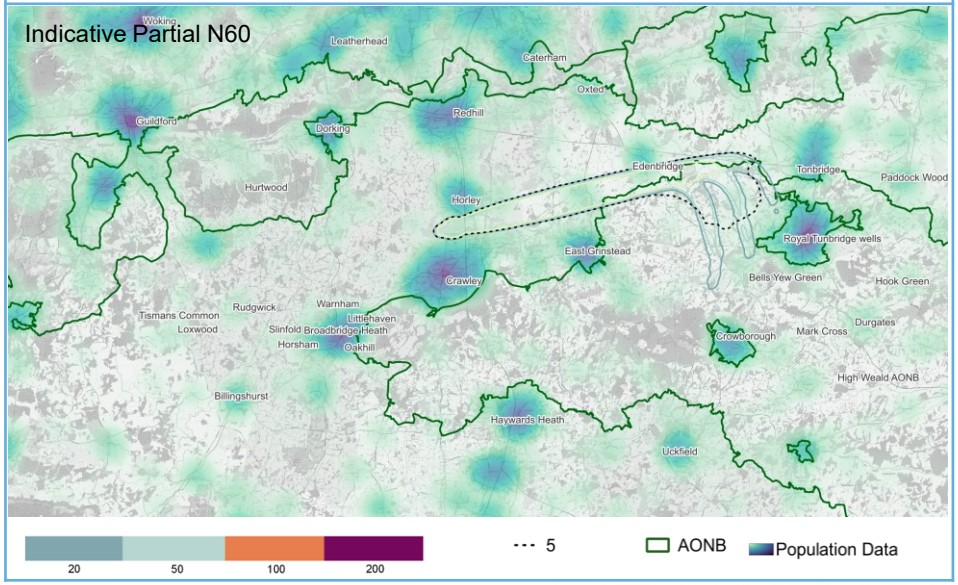
Day





Night





FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAJ

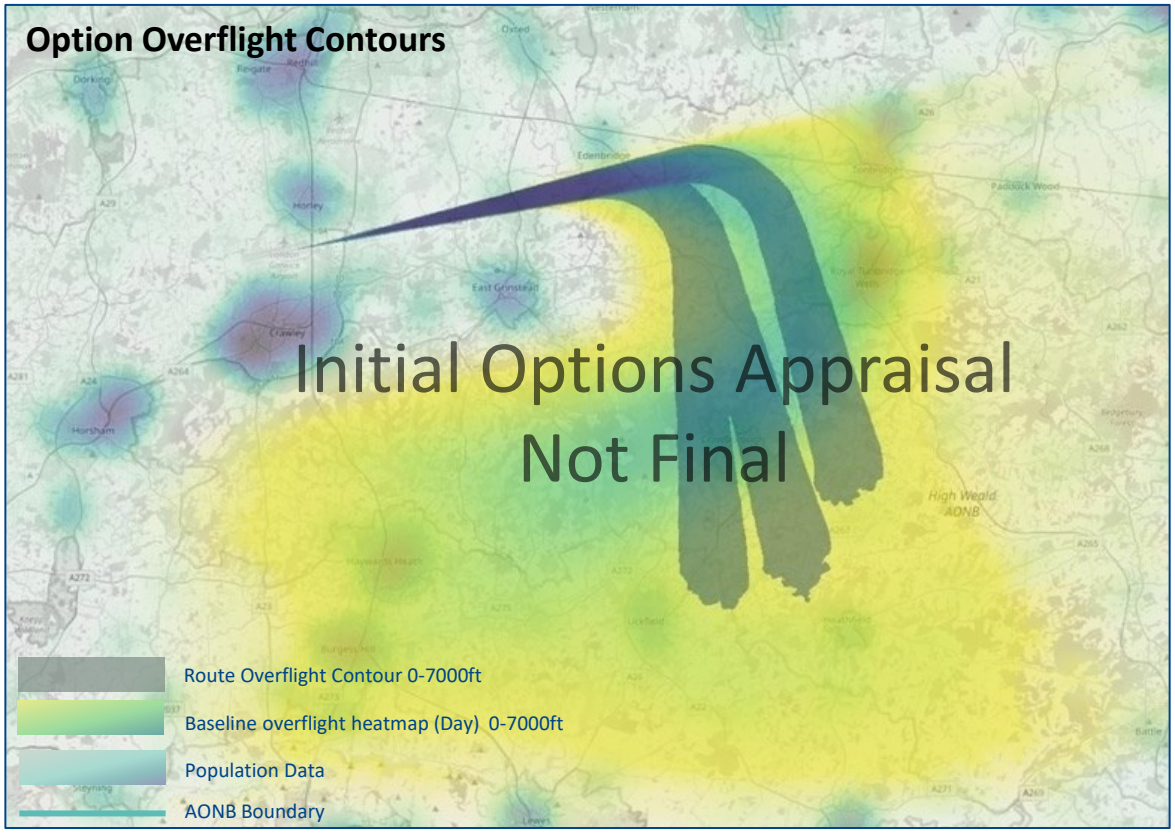
Description

This option offers three PBN arrivals which could be used in a respite configuration. The routes join the final approach at c.8.5nm, c.9nm and c.11.5nm. When developing this option there was a focus on meeting DP3 (limit adverse noise effects), DP7 (Long term predictability and adaptability) and minimising population newly overflown whilst also considering DP1, DP2, DP4, DP5, DP7, DP8, DP9 and the AMS.

Noise

The three routes within this option offer a lateral change in approach compared to the baseline however large parts of the routes remain within the baseline swathe including the turn onto final approach.
At night, two of the three routes would introduce new overflight compared to the baseline as aircraft would join final approach under 10nm.
Compared to the baseline, PBN arrival transitions have the potential to create concentration. This option offers some noise sharing via the three routes, however the two westerly routes have areas of overlap where the potential for respite is reduced. There may also be dispersal around the routes and this will be dependent on the level of vectoring required which will be explored in further detail as part of Stage 3 should the option progress. It is expected that arrivals will achieve improved CDO performance which has the potential to improve noise.

Overflight Illustration



Airspace Modernisation Strategy

Supports the AMS through the implementation of PBN arrivals which would be for noise and environmental mitigation purposes as set out in the Government's Air Navigation Guidance. PBN arrivals are expected to be used in conjunction with an RMA as part of wider a system design which could enable simplification, integration, safety and efficiency enhancements.

Safety

No IFP design issues are anticipated with this option.

The more approaches available. the higher the changes of a safety error by ATC or Pilots. In order to mitigate this risk, additional assurance work would be required with a safety argument generated. This expected to be achievable but would require further investigation as part of Stage 3 activity should this option progress.

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAJ

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	7154	-90
LOAEL (Night)	3146	-489
N65 (20)	5927	-28
N60 (5)	13162	+1343

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	2.4	+0.2 km²

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*No impacts expected*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Potential for positive compared to baseline*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*No change expected*

Costs	Qualitative Conclusion
Commercial Airlines Training	*No costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

LONDON GATWICK

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAJ

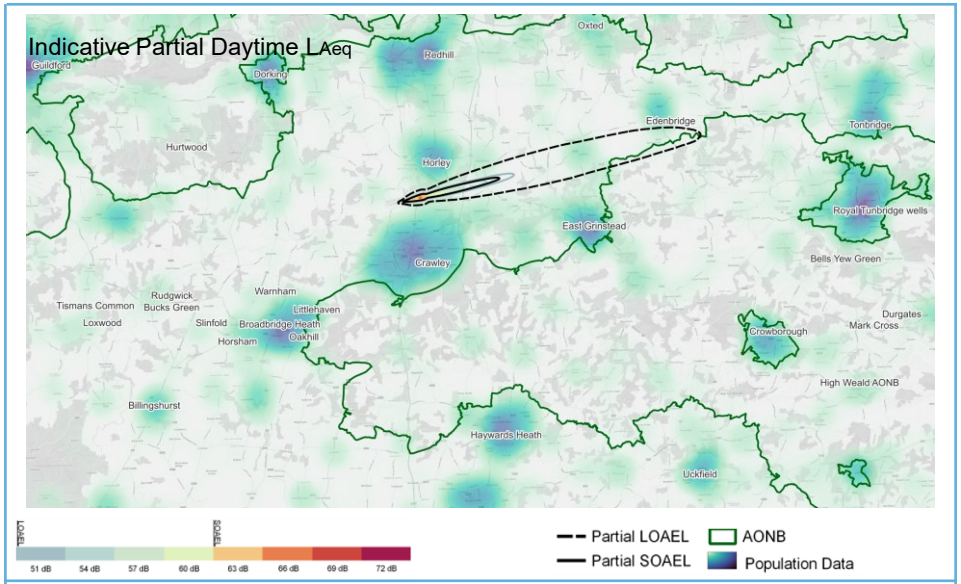
Option Name	Noise			Air Quality	Tranquillity (Overflight area km^2)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAJ	40293	125	173	No	170.3	0	0	No
Interdependencies, conflicts & trade-offs								
Option has potential interactions with some departure routes however interactions are minimised with those departure routes that have been evolved to reduce interactions with arrivals.								

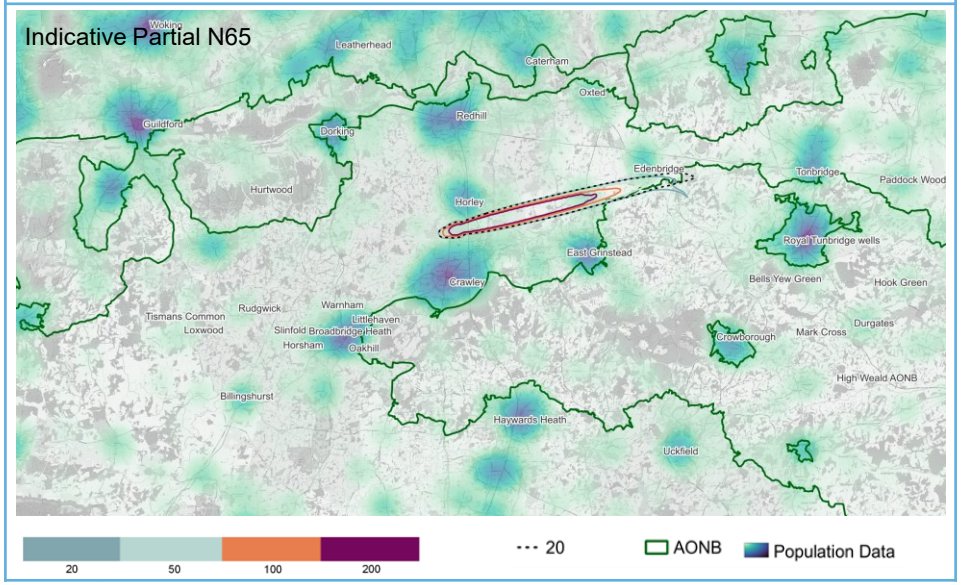
FASI-S ACP Initial Options Appraisal Dashboard

Option

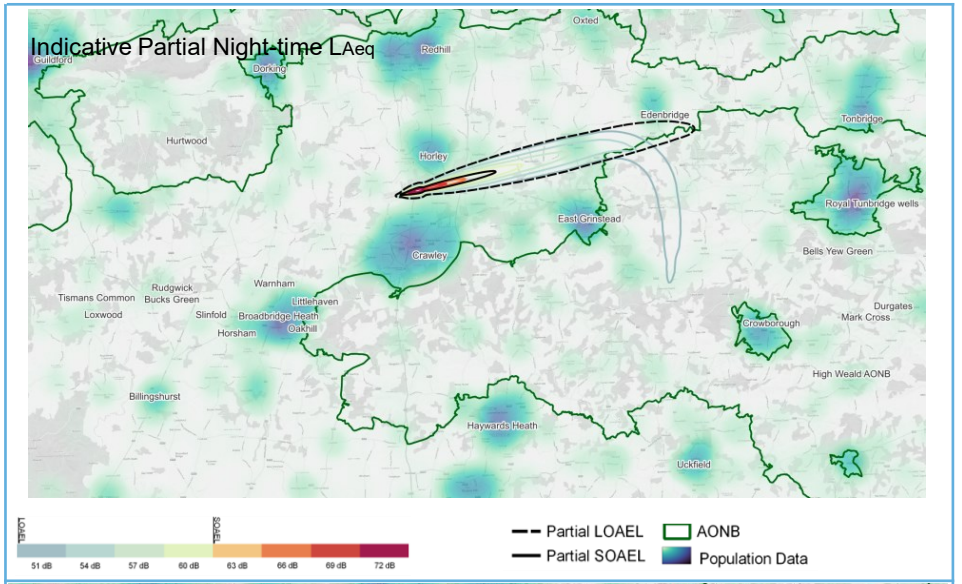
Westerly Arrivals: WAJ

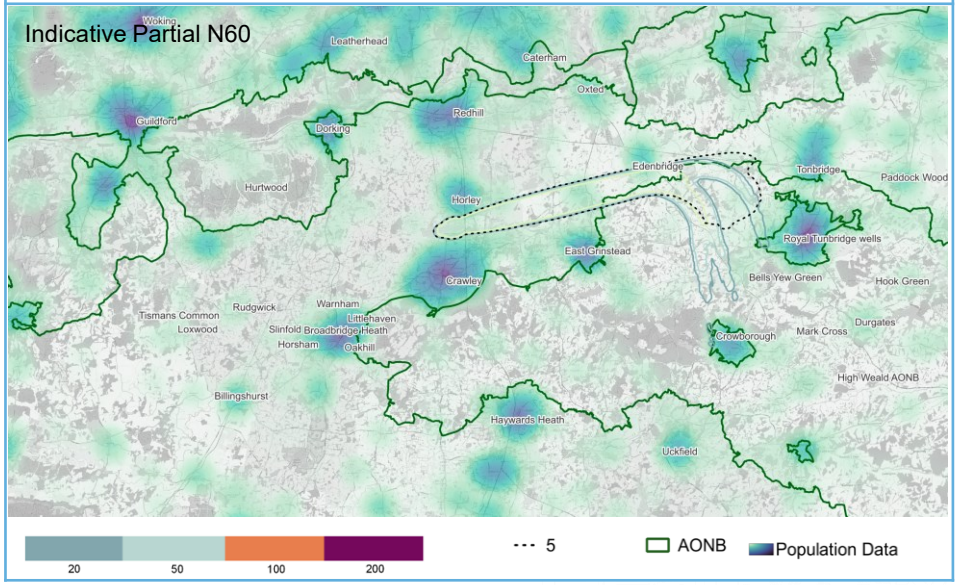
Day





Night





FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAK

Description

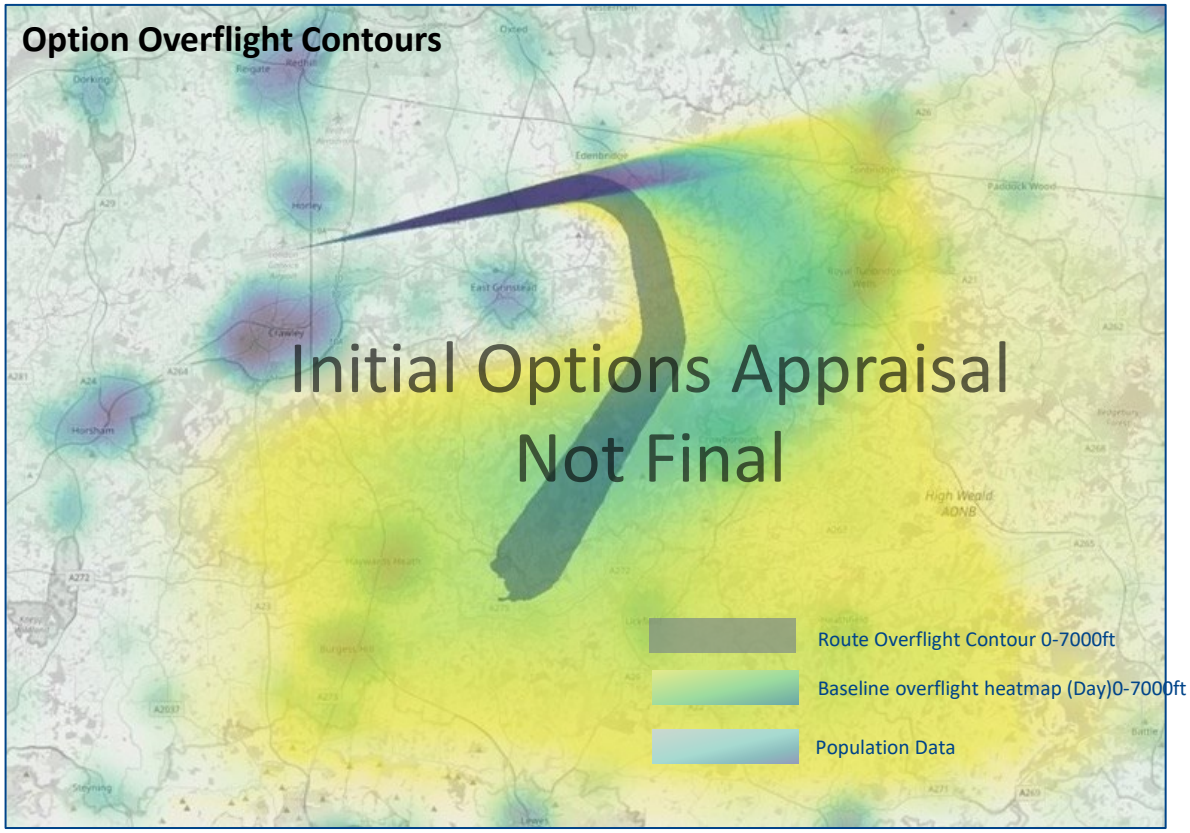
This PBN arrival option joins the final approach at c.8.0nm. This option was developed following stakeholder feedback where there was a request for an option that joins the final approach between 7 – 9nm. When developing this option, there was a focus on DP3 and balancing total population overflown and population newly overflown as this also formed part of the same feedback. DP1, DP2, DP4, DP5, DP7, DP8, DP9 and the AMS were also considered.

Noise

This option is located slightly west of the main swathe of concentration within the baseline however it is within an area overflown today. At night, this option would introduce new overflight compared to the baseline as aircraft would join final approach under 10nm.

A single PBN arrival transition has the potential to create significant concentration. This will be dependent on the level of vectoring also required which will be explored in further detail as part of Stage 3 should the option progress. It is expected that arrivals will achieve improved CDO performance which has the potential to improve noise.

Overflight Illustration



Airspace Modernisation Strategy

Supports the AMS through the implementation of PBN arrivals which would be for noise and environmental mitigation purposes as set out in the Government's Air Navigation Guidance. PBN arrivals are expected to be used in conjunction with an RMA as part of a wider system design where they could enable simplification, integration, safety and efficiency enhancements.

Safety

No IFP design issues are anticipated with this option. There is precedent for PBN to ILS procedures in the UK.

No safety concerns with the use of a single PBN approach transition onto final approach, assuming adequate separation from all other routes

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAK

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	7405	+667
LOAEL (Night)	3237	-91
N65 (20)	6065	+5,785
N60 (5)	11569	+2,028

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	7	+4.8 km²

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*No impacts expected*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Not expected to require additional CAS*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*No change expected*

Costs	Qualitative Conclusion
Commercial Airlines Training	*No costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

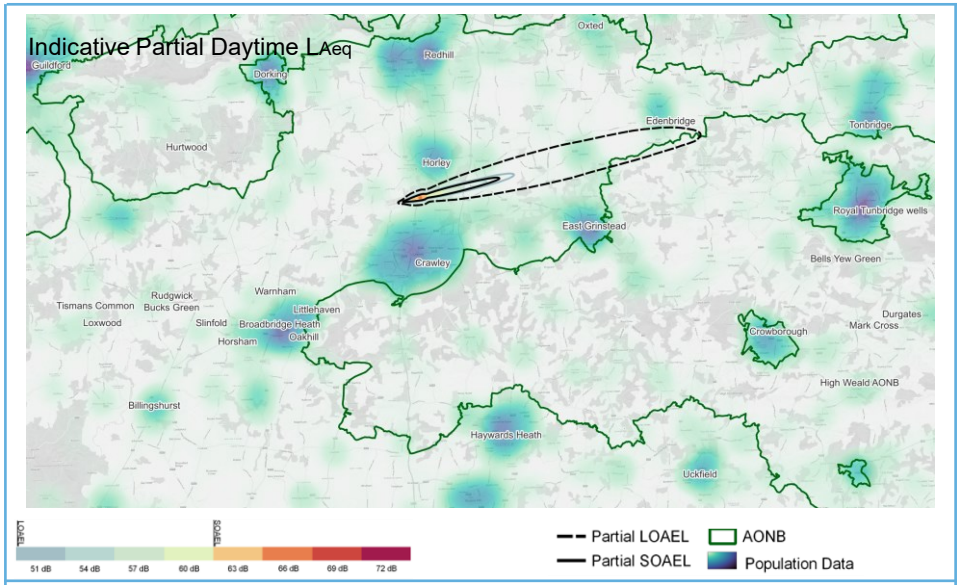
Option Name	Noise			Air Quality	Tranquillity (Overflight area km^2)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAK	12885	125	583	No	47.9	0	0	Yes
Interdependencies, conflicts & trade-offs								
Option has potential interactions with some departure routes however interactions are minimised with those departure routes that have been evolved to reduce interactions with arrivals.								

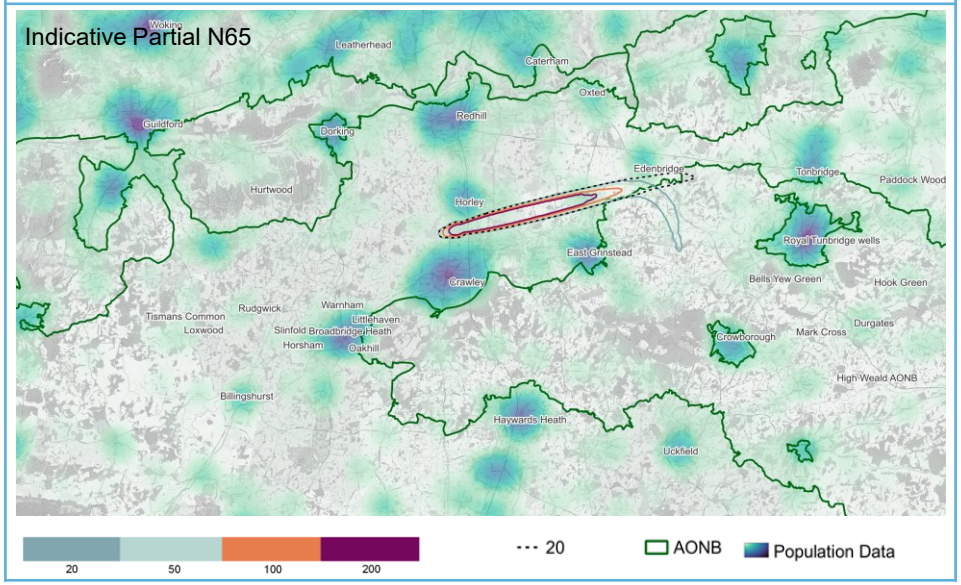
FASI-S ACP Initial Options Appraisal Dashboard

Option

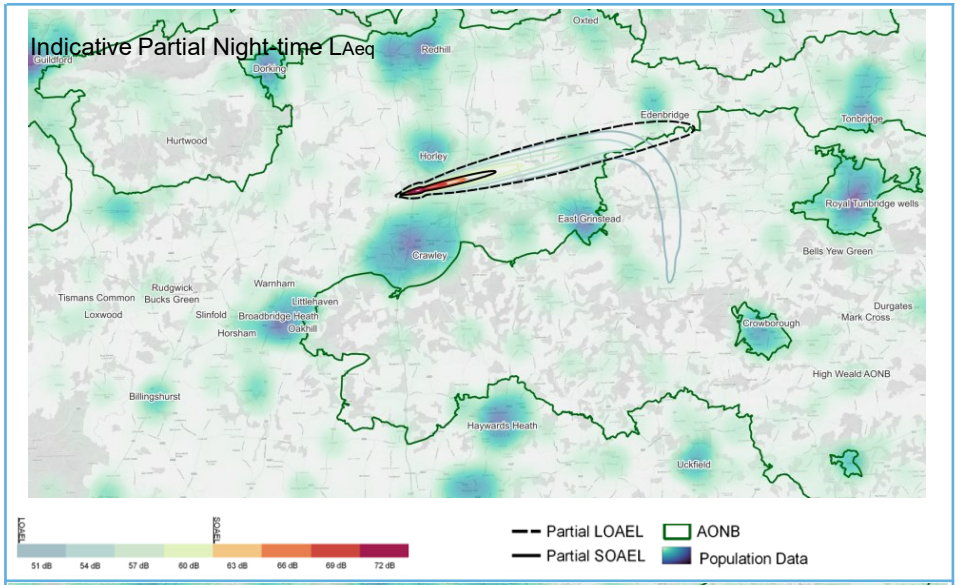
Westerly Arrivals: WAK

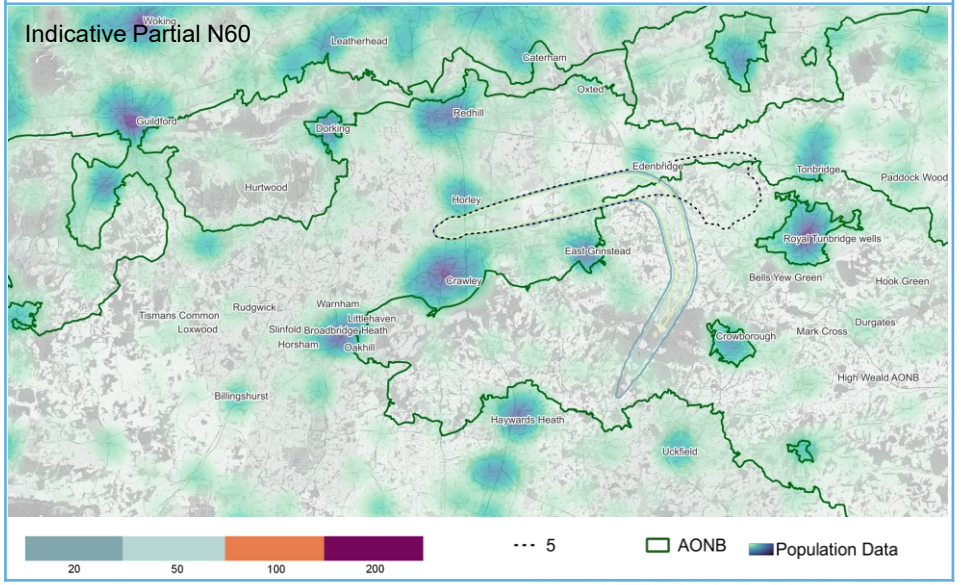
Day





Night





FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAL

Description

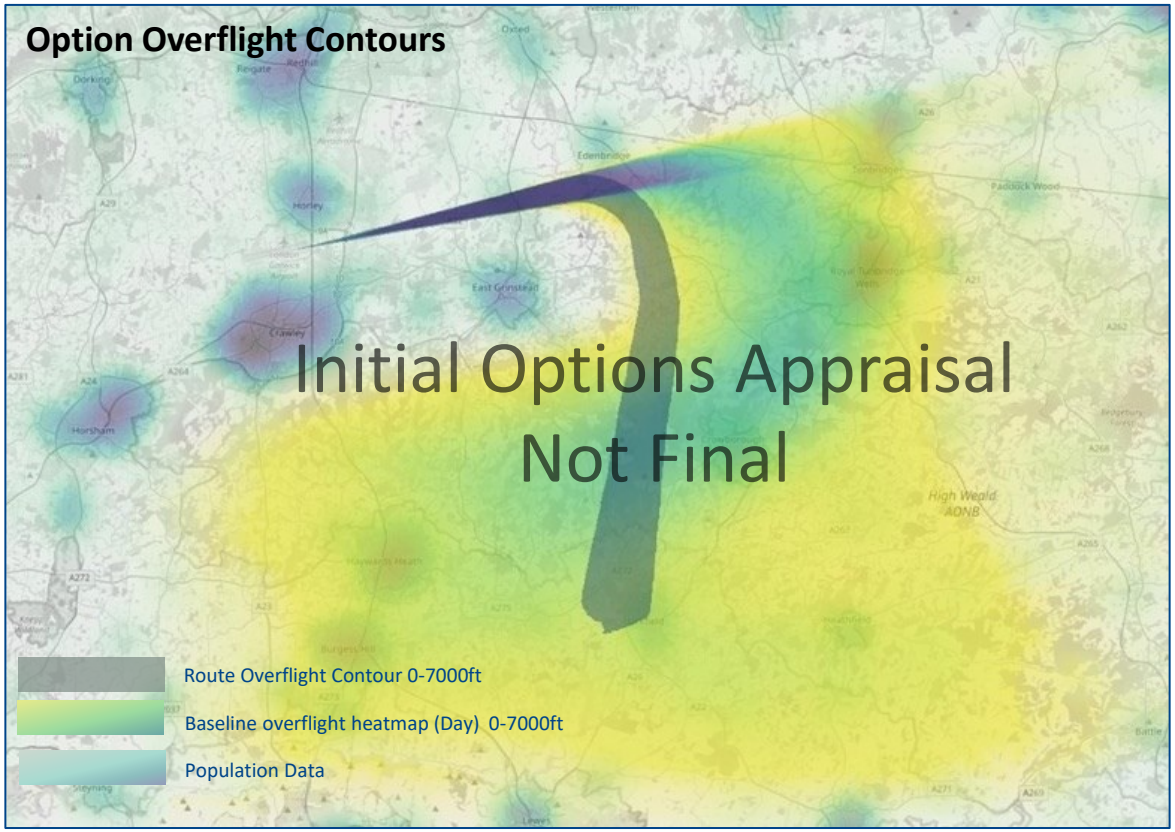
This PBN arrival option joins the final approach at c.8.0nm. This option was developed following stakeholder feedback where there was a request for an option that joins the final approach between 7 – 9nm. When developing this option, there was a focus on DP3, DP6 and balancing total population overflown and population newly overflown as this also formed part of the same feedback. DP1, DP2, DP4, DP5, DP7, DP8, DP9 and the AMS were also considered.

Noise

This option is located slightly west of the main swathe of concentration within the baseline however it is within an area overflown today

A single PBN arrival transition has the potential to create significant concentration. This will be dependent on the level of vectoring also required which will be explored in further detail as part of Stage 3 should the option progress. It is expected that arrivals will achieve improved CDO performance which has the potential to improve noise.

Overflight Illustration



Airspace Modernisation Strategy

Supports the AMS through the implementation of PBN arrivals which would be for noise and environmental mitigation purposes as set out in the Government's Air Navigation Guidance. PBN arrivals are expected to be used in conjunction with an RMA as part of wider a system design which could enable simplification, integration, safety and efficiency enhancements.

Safety

No IFP design issues are anticipated with this option. There is precedent for PBN to ILS procedures in the UK.

No safety concerns with the use of a single PBN approach transition onto final approach, assuming adequate separation from all other routes

LONDON GATWICK

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAL

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	7344	+100
LOAEL (Night)	3237	-398
N65 (20)	6089	+134
N60 (5)	11293	-526

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	7	+4.8 km²

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*No impacts expected*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Not expected to require additional CAS*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*No change expected*

Costs	Qualitative Conclusion
Commercial Airlines Training	*No costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

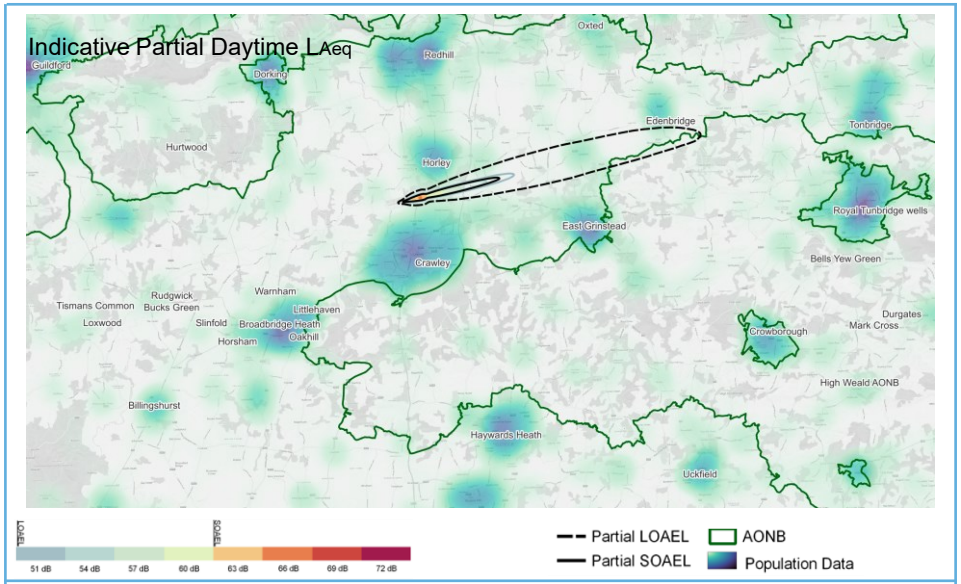
Option Name	Noise			Air Quality	Tranquillity (Overflight area km^2)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAL	7760	125	583	No	62.3	0	0	Yes
Interdependencies, conflicts & trade-offs								
Option has potential interactions with some departure routes however interactions are minimised with those departure routes that have been evolved to reduce interactions with arrivals.								

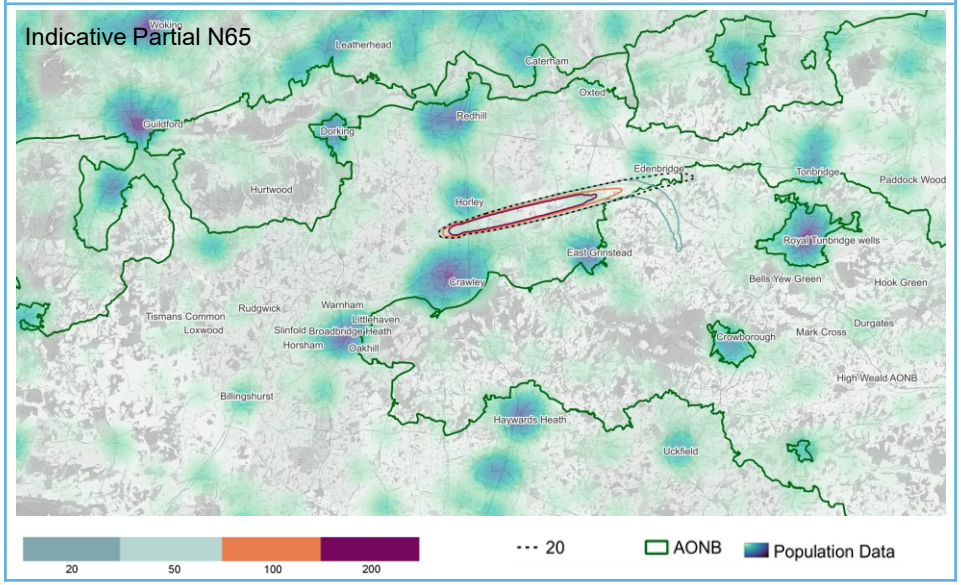
FASI-S ACP Initial Options Appraisal Dashboard

Option

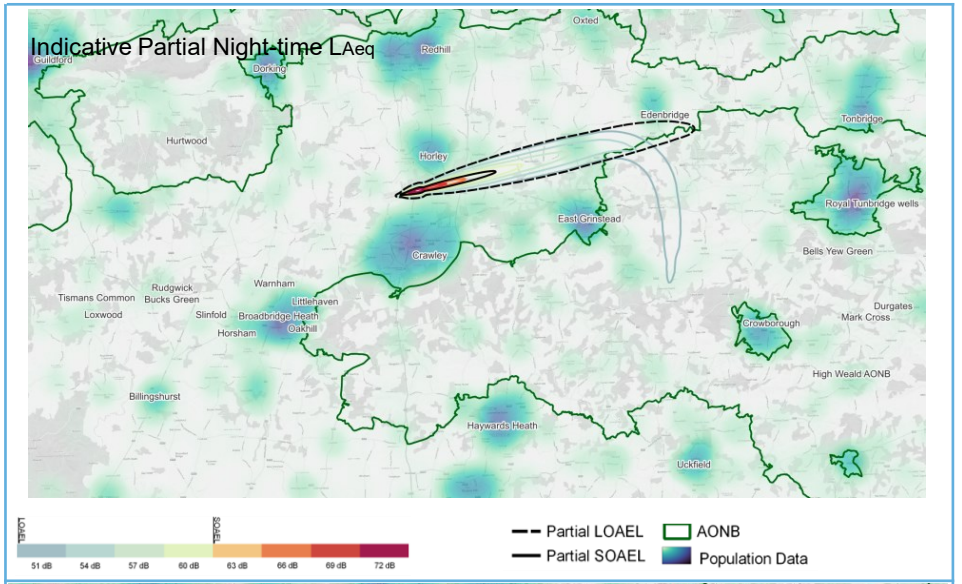
Westerly Arrivals: WAL

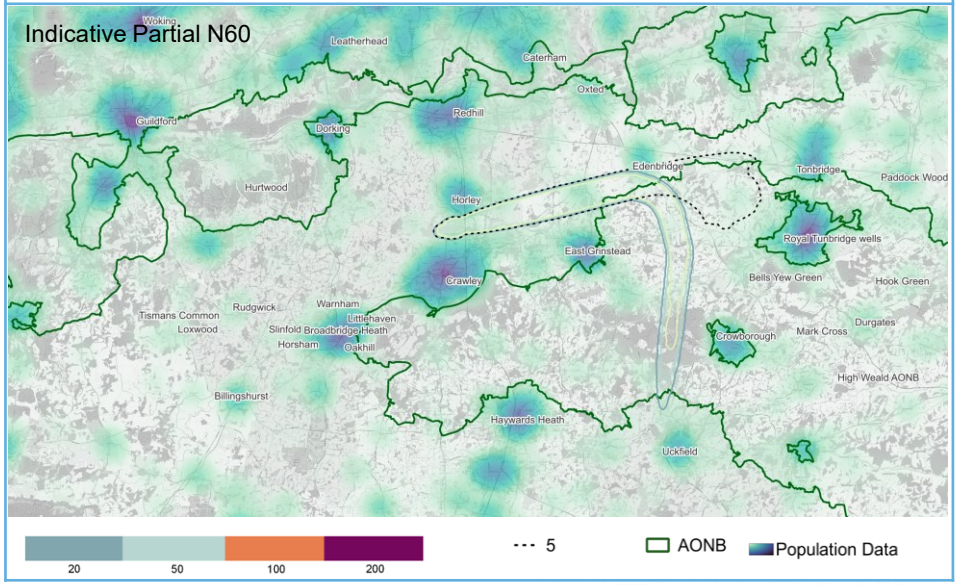
Day





Night





FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAM

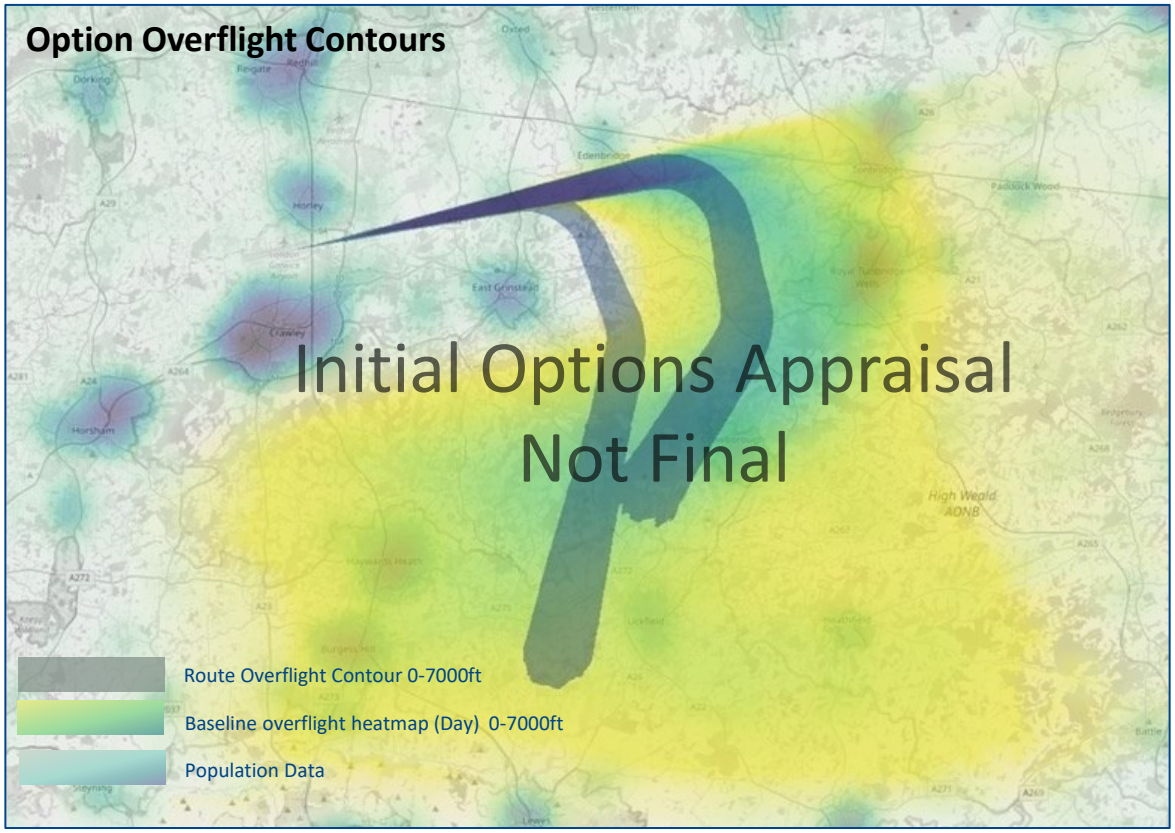
Description

This option offers two PBN arrivals which could be used in a respite configuration. The routes join the final approach at c.6.5nm and c.10.5nm. This option was developed following stakeholder feedback. When developing this option, there was a focus on DP3, DP7 and balancing total population overflown and population newly overflown as this also formed part of the same feedback. DP1, DP2, DP4, DP5, DP7, DP8, DP9 and the AMS were also considered.

Noise

As the westerly route of this option cannot be operated as a PBN-ILS transition, the frequency that it could be used is reduced and therefore noise benefits and respite benefits are unlikely to be realised compared to other options where a PBN-ILS transition is available. This option is outside of the existing airspace arrangements as it joins final approach closer than today, creating areas of new overflight compared to the baseline.
Compared to the baseline, PBN arrival transitions have the potential to create significant concentration however this option offers some noise sharing. There may also be dispersal around the routes and this will be dependent on the level of vectoring required which will be explored in further detail as part of Stage 3 should the option progress. It is expected that arrivals will achieve improved CDO performance which has the potential to improve noise.

Overflight Illustration



Airspace Modernisation Strategy

Supports the AMS through the implementation of PBN arrivals which would be for noise and environmental mitigation purposes as set out in the Government's Air Navigation Guidance. PBN arrivals are expected to be used in conjunction with an RMA as part of wider a system design which could enable simplification, integration, safety and efficiency enhancements.

Safety

This option joins final approach at c 6.5nm which raises IFP design issues as a PBN to ILS transition.

The more approaches available. the higher the changes of a safety error by ATC or Pilots. In order to mitigate this risk, additional assurance work would be required with a safety argument generated. This expected to be achievable but would require further investigation as part of Stage 3 activity should this option progress.

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAM

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	6412	-832
LOAEL (Night)	3197	-438
N65 (20)	5649	-306
N60 (5)	12963	+1144

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	4.2	+2 km²

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*Impacts identified*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Not expected to require additional CAS*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*Impacts identified*

Costs	Qualitative Conclusion
Commercial Airlines Training	*No costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

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FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAM

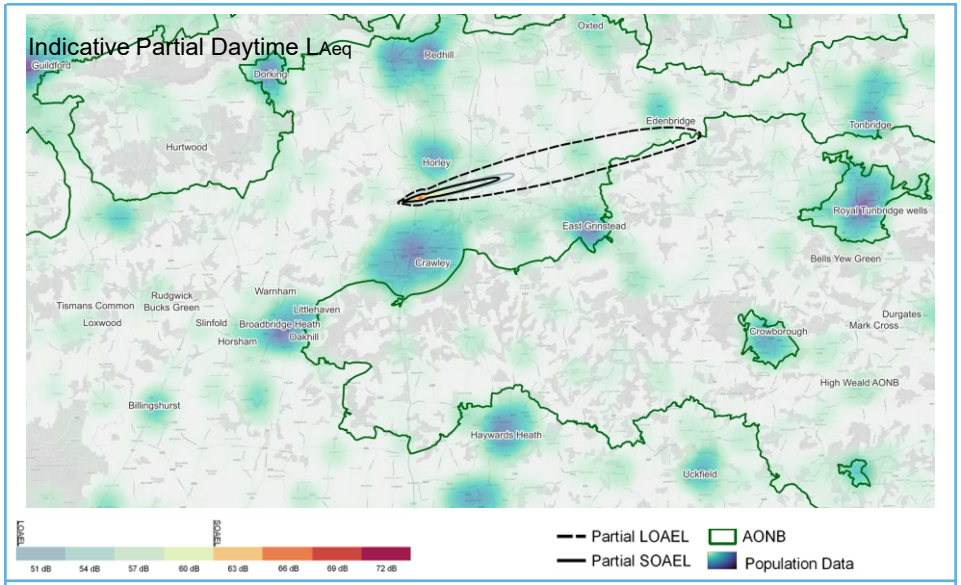
Option Name	Noise			Air Quality	Tranquillity (Overflight area km^2)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAM	15108	428	559	No	108.5	0	0	No
Interdependencies, conflicts & trade-offs								
Although some westerly departure routes have been evolved to reduce interactions with arrivals, due to the position of the join onto final approach, further investigation would be required to resolve the interactions of this option with any left turn wrap around westerly departures. Options with shorter final approaches are more likely to have interactions with departures which may require resolution through reduced CCO/CDO performance.								

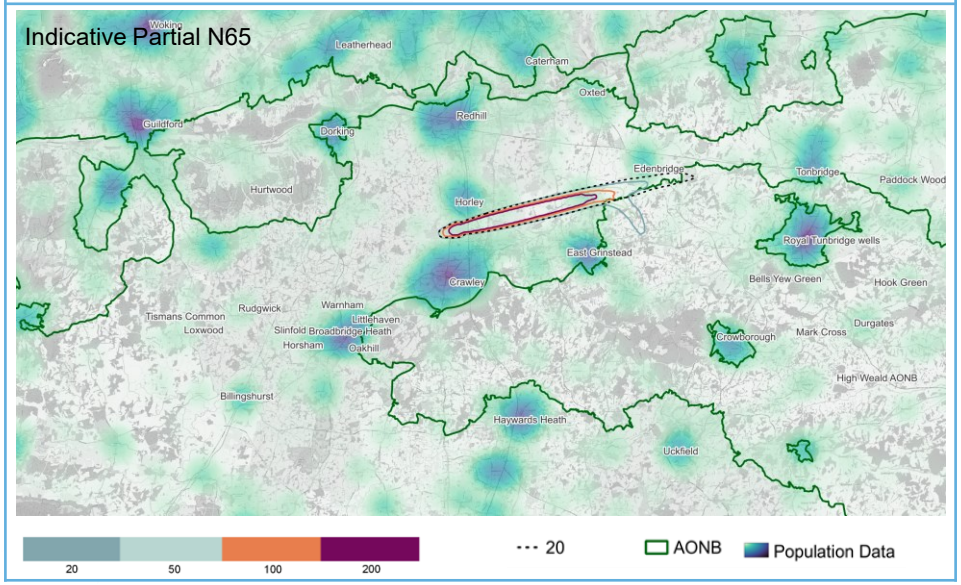
FASI-S ACP Initial Options Appraisal Dashboard

Option

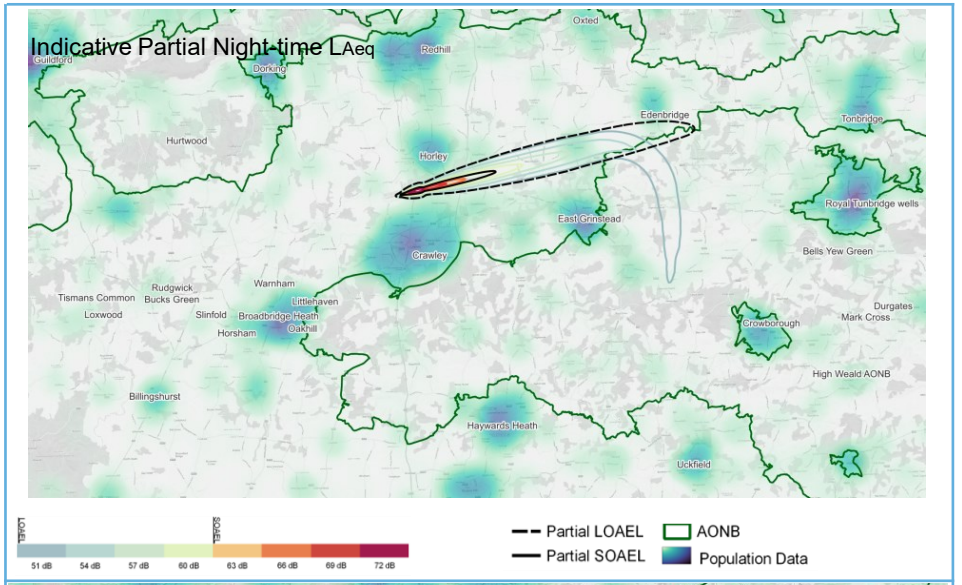
Westerly Arrivals: WAM

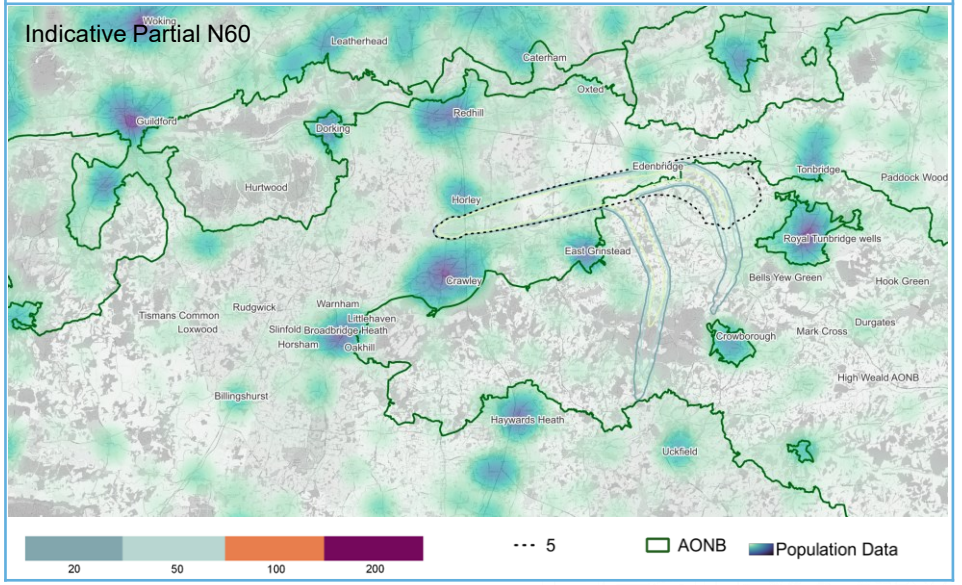
Day





Night





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Option

Westerly Arrivals: WAO

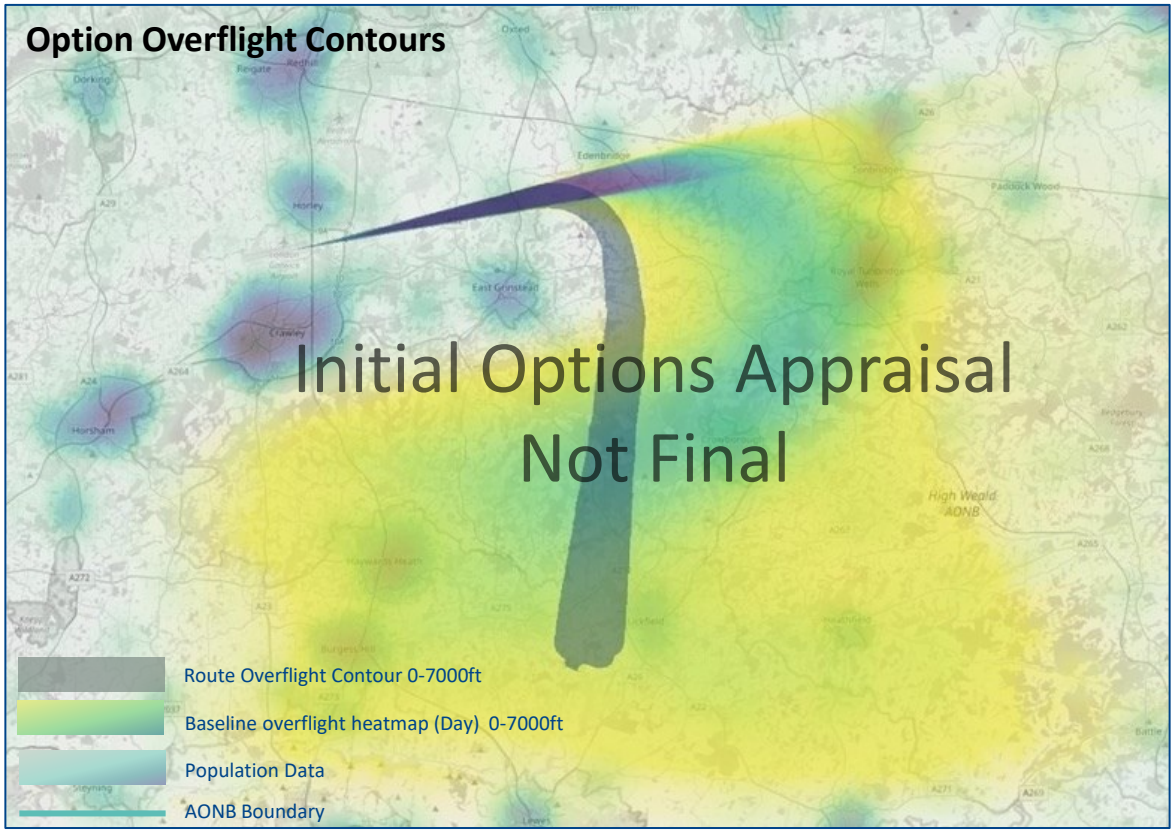
Description

This PBN arrival option joins the final approach at c.7.0nm and it was developed following stakeholder feedback. When developing this option there was a focus on meeting DP3 and DP6 whilst balancing population overflown against minimising population newly overflown DP1, DP2, DP4, DP5, DP7, DP8, DP9 and the AMS were also considered.

Noise

As this option cannot be operated as a PBN-ILS transition, the frequency it could be used is reduced and therefore noise benefits are unlikely to be realised compared to other options where a PBN-ILS transition is available. This option is outside of the existing airspace arrangements as it joins final approach closer than today, creating areas of new overflight compared to the baseline. It is expected that arrivals will achieve improved CDO performance.

Overflight Illustration



Airspace Modernisation Strategy

Supports the AMS through the implementation of PBN arrivals which would be for noise and environmental mitigation purposes as set out in the Government's Air Navigation Guidance. PBN arrivals are expected to be used in conjunction with an RMA as part of wider a system design which could enable simplification, integration, safety and efficiency enhancements.

Safety

This option joins final approach at c.7nm which raises IFP design issues as a PBN to ILS transition.

No safety concerns with the use of a single PBN approach transition onto final approach, assuming adequate separation from all other routes

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAO

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	6594	-650
LOAEL (Night)	3237	-398
N65 (20)	5737	-218
N60 (5)	11247	-572

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	8.7	+6.5 km²

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*Impacts identified*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Not expected to require additional CAS*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*Impacts identified*

Costs	Qualitative Conclusion
Commercial Airlines Training	*No costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

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FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAO

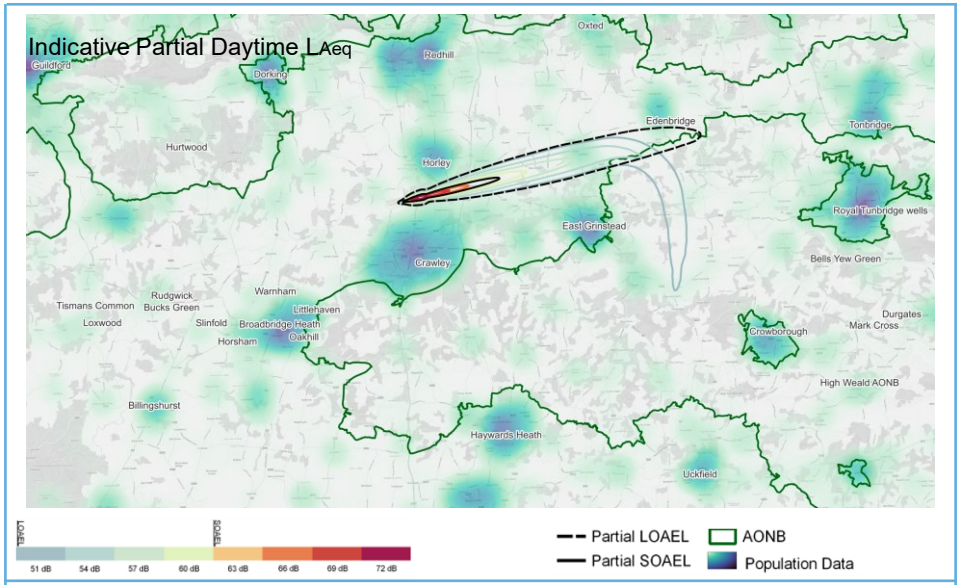
Option Name	Noise			Air Quality	Tranquillity (Overflight area km^2)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAO	7303	250	557	No	43.6	0	0	No
Interdependencies, conflicts & trade-offs								
Although some westerly departure routes have been evolved to reduce interactions with arrivals, due to the position of the join onto final approach, further investigation would be required to resolve the interactions of this option with any left turn wrap around westerly departures. Options with shorter final approaches are more likely to have interactions with departures which may require resolution through reduced CCO/CDO performance.								

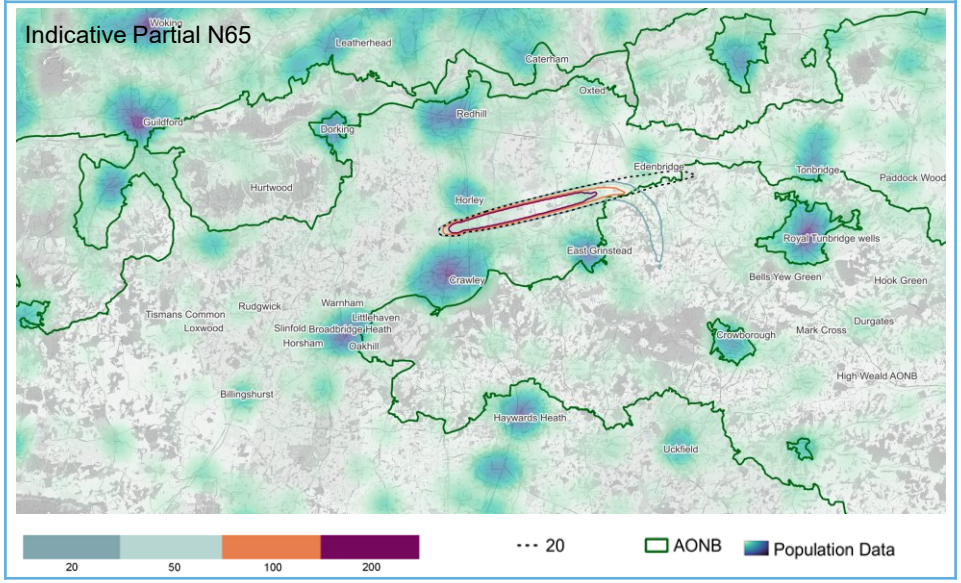
FASI-S ACP Initial Options Appraisal Dashboard

Option

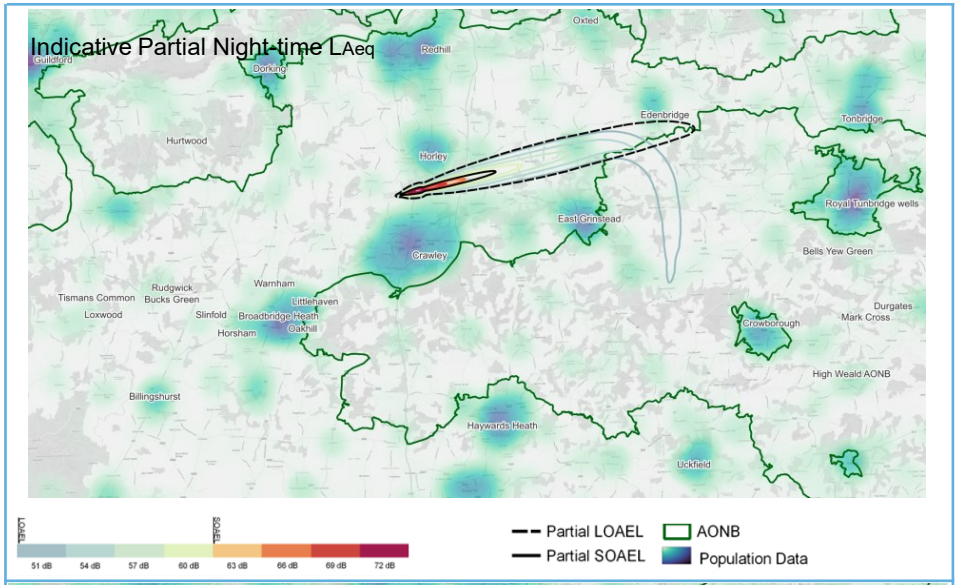
Westerly Arrivals: WAO

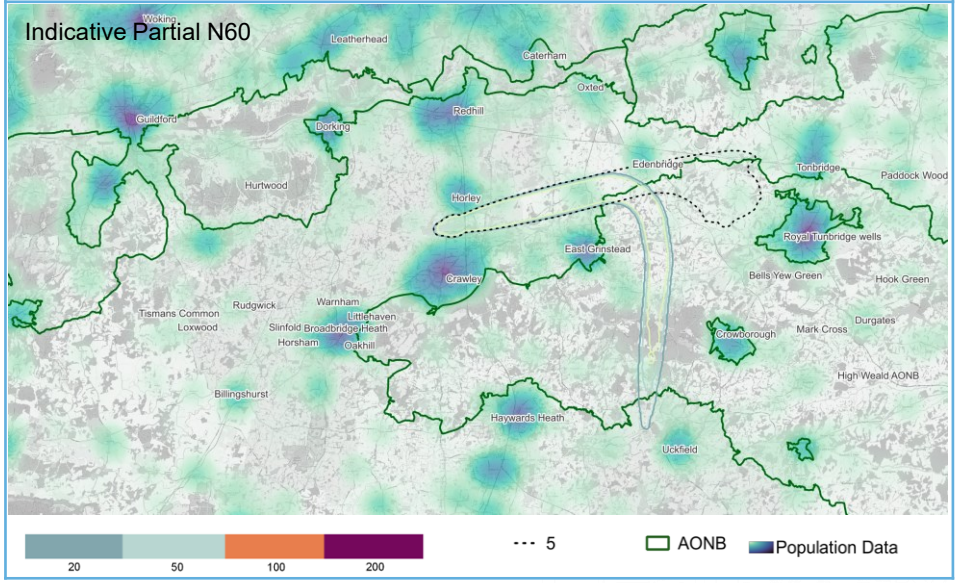
Day





Night





FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAP

Description

This PBN arrival option joins the final approach at c.3nm. It aims to follow the areas of high road/rail noise as outlined on DEFRA's noise mapping. This option was developed following stakeholder feedback and aimed to meet DP1, DP2, DP3, DP4, DP5, DP7, DP8, DP9 and the AMS. This arrival option would utilise a type of PBN called RNP-AR. Not all aircraft and crews are able to fly RNP-AR and therefore these routes would need to be operated alongside other arrival options.

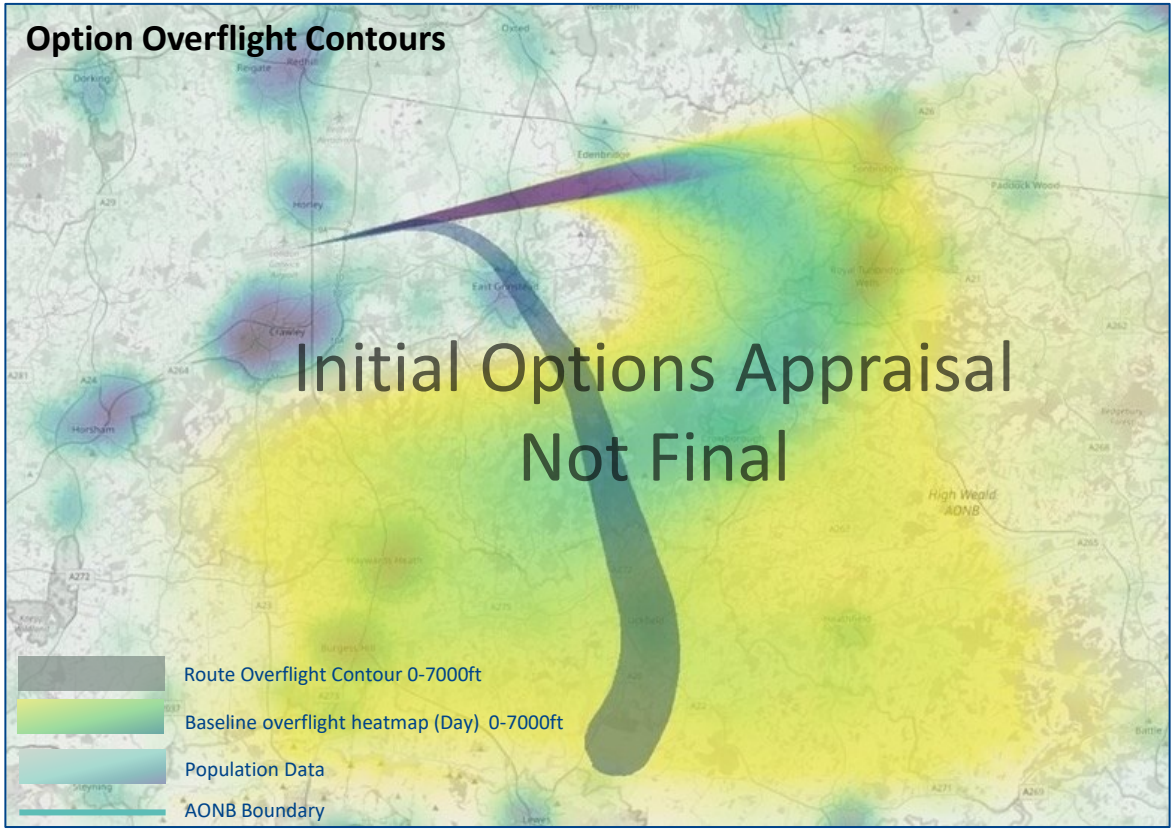
Noise

This option uses RNP-AR which impacts the frequency the option can be operated and therefore the amount of benefits/impacts the option can realise.

Although it has been developed following stakeholder feedback regarding ambient noise, there is currently no mechanism for assessing ambient noise, and the noise metrics required by CAP1616 and government policy suggest a significant increase in the number of people adversely affected by noise.

This option is outside of the existing airspace arrangements as it joins final approach closer than today, creating areas of new overflight compared to the baseline. It is expected that arrivals will achieve improved CDO performance.

Overflight Illustration



Airspace Modernisation Strategy

This option is expected to increase population experiencing adverse noise effects whereas there are other options which better align with the AMS objectives by performing either similarly or better than the baseline in terms of population within the indicative partial LOAEL. The option could offer some Fuel Burn / CO2 savings for those aircraft able to operate an RNP-AR approach. PBN arrivals are expected to be used in conjunction with an RMA as part of wider a system design where they could enable simplification, integration, safety and efficiency enhancements.

Safety

New safety assurances would be required for the RNP-AR arrivals which have not yet been implemented in the UK. The turn onto final approach is close to the regulatory limits and would require further investigation as part of IFP Design and flyability assessment in Stage 3 should this option progress.

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAP

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	25822	+18578
LOAEL (Night)	3933	+298
N65 (20)	21341	+15386
N60 (5)	49176	+37357

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	11.7	+9.5 km²

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*Impacts identified*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Not expected to require additional CAS*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*Impacts identified*

Costs	Qualitative Conclusion
Commercial Airlines Training	*Costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

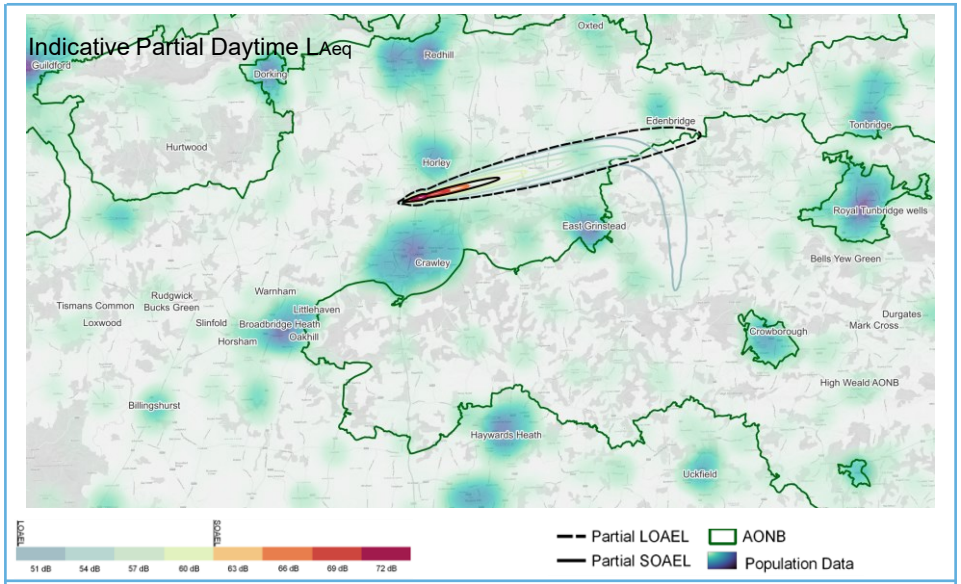
Option Name	Noise			Air Quality	Tranquillity (Overflight area km^2)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAP	36252	11084	13851	No	24.9	0	0	No
Interdependencies, conflicts & trade-offs								
Option has interactions with some departure routes that would be complex to integrate. This is due to the later turn onto final approach which results in the arrivals being in closer proxity to departing traffic where it is difficult to main required separation standards between routes.								

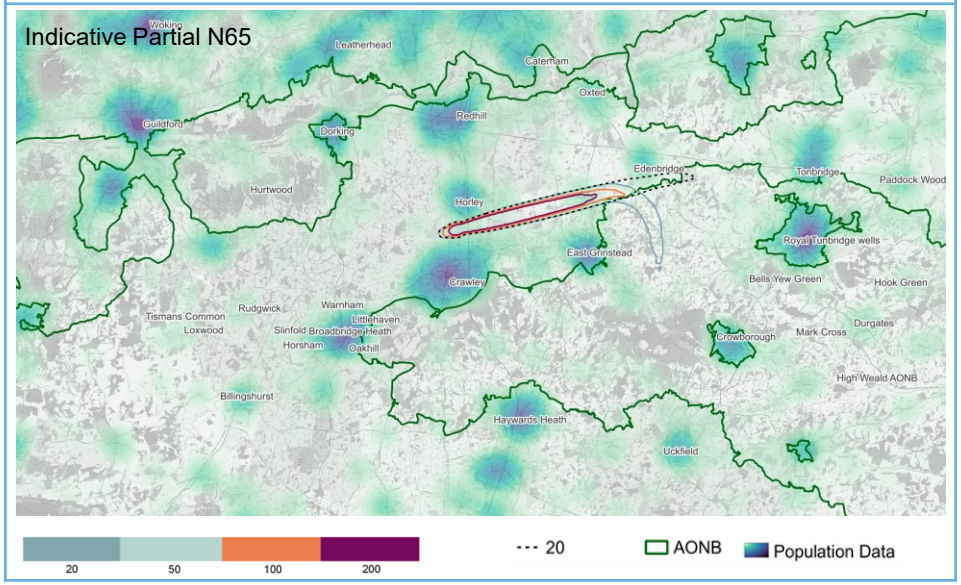
FASI-S ACP Initial Options Appraisal Dashboard

Option

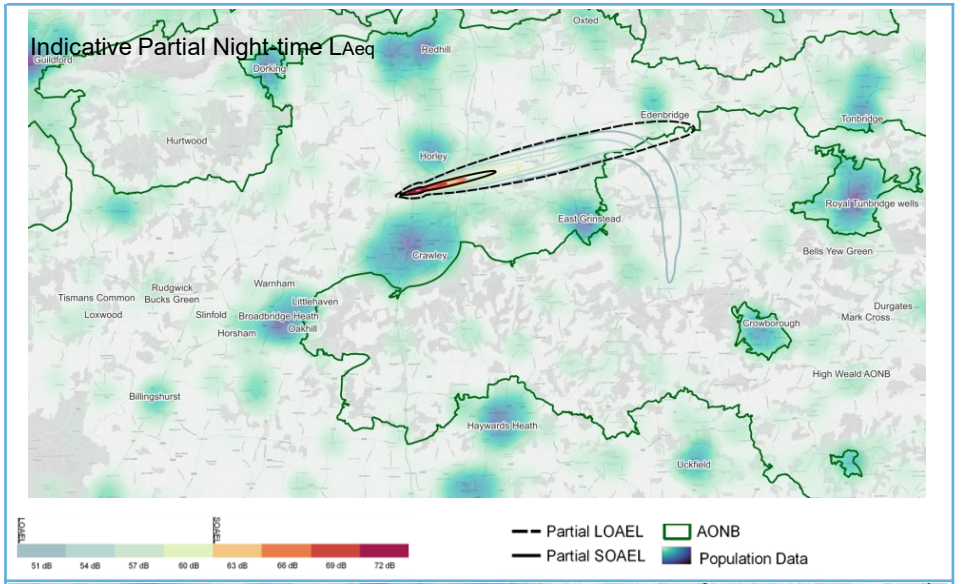
Westerly Arrivals: WAP

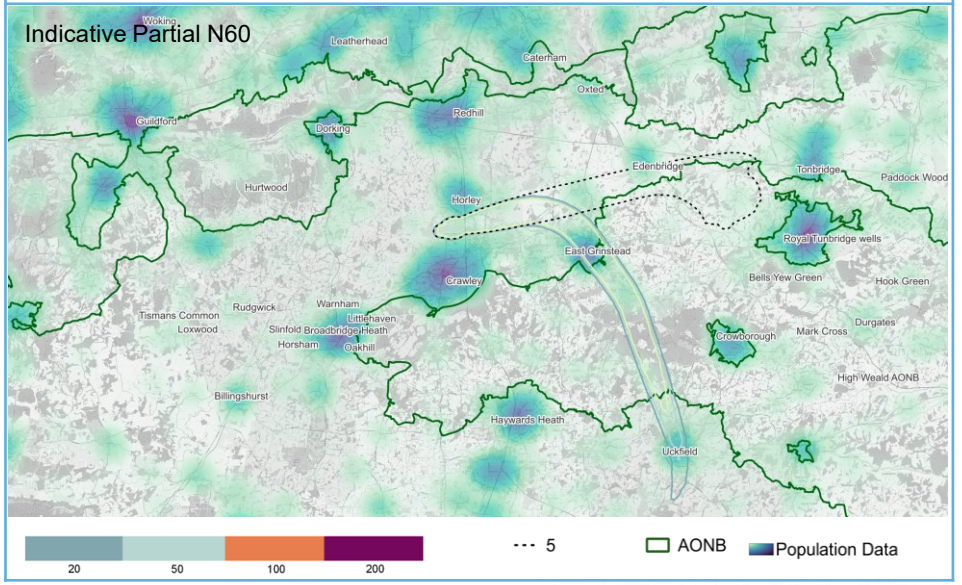
Day





Night





FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAQ

Description

This PBN arrival option joins the final approach at c.3nm. It aims to follow the areas of high road/rail noise as outlined on DEFRA's noise mapping. This option was developed following stakeholder feedback and aimed to meet DP1, DP2, DP3, DP4, DP5, DP6, DP7, DP8, DP9 and the AMS. This arrival option would utilise a type of PBN called RNP-AR. Not all aircraft and crews are able to fly RNP-AR and therefore these routes would need to be operated alongside other arrival options.

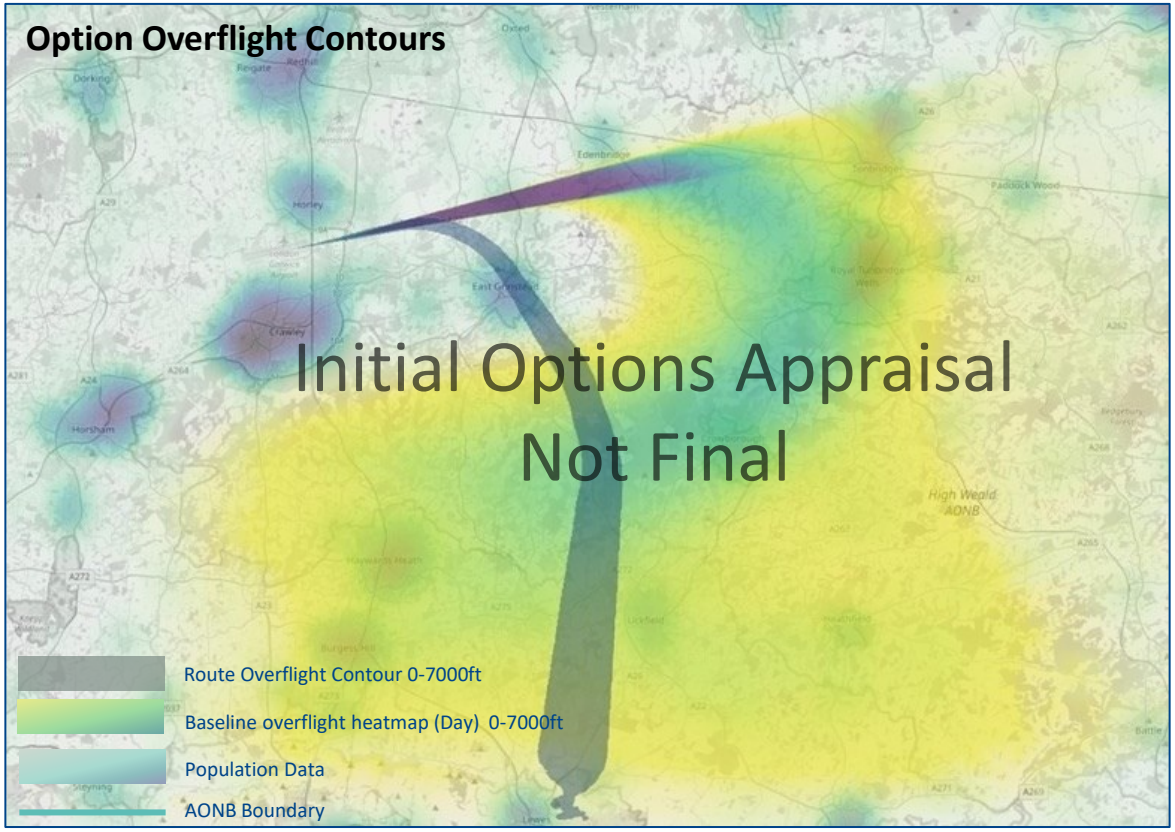
Noise

This option uses RNP-AR which impacts the frequency the option can be operated and therefore the amount of benefits/impacts the option can realise.

Although it has been developed following stakeholder feedback regarding ambient noise, there is currently no mechanism for assessing ambient noise, and the noise metrics required by CAP1616 and government policy suggest a significant increase in the number of people adversely affected by noise.

This option is outside of the existing airspace arrangements as it joins final approach closer than today, creating areas of new overflight compared to the baseline. It is expected that arrivals will achieve improved CDO performance.

Overflight Illustration



Airspace Modernisation Strategy

This option is expected to increase population experiencing adverse noise effects whereas there are other options which better align with the AMS objectives by performing either similarly or better than the baseline in terms of population within the indicative partial LOAEL. The option could offer some Fuel Burn / CO2 savings for those aircraft able to operate an RNP-AR approach. PBN arrivals are expected to be used in conjunction with an RMA as part of wider a system design where they could enable simplification, integration, safety and efficiency enhancements.

Safety

New safety assurances would be required for the RNP-AR arrivals which have not yet been implemented in the UK. The turn onto final approach is close to the regulatory limits and would require further investigation as part of IFP Design and flyability assessment in Stage 3 should this option progress.

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAQ

Indicative Partial System Performance

Noise	*Population*	Difference to Baseline
LOAEL (Day)	26326	+19082
LOAEL (Night)	4028	+393
N65 (20)	21170	+15215
N60 (5)	33935	+22116

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	11.5	+9.3 km²

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*Impacts identified*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Not expected to require additional CAS*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*Impacts identified*

Costs	Qualitative Conclusion
Commercial Airlines Training	*Costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

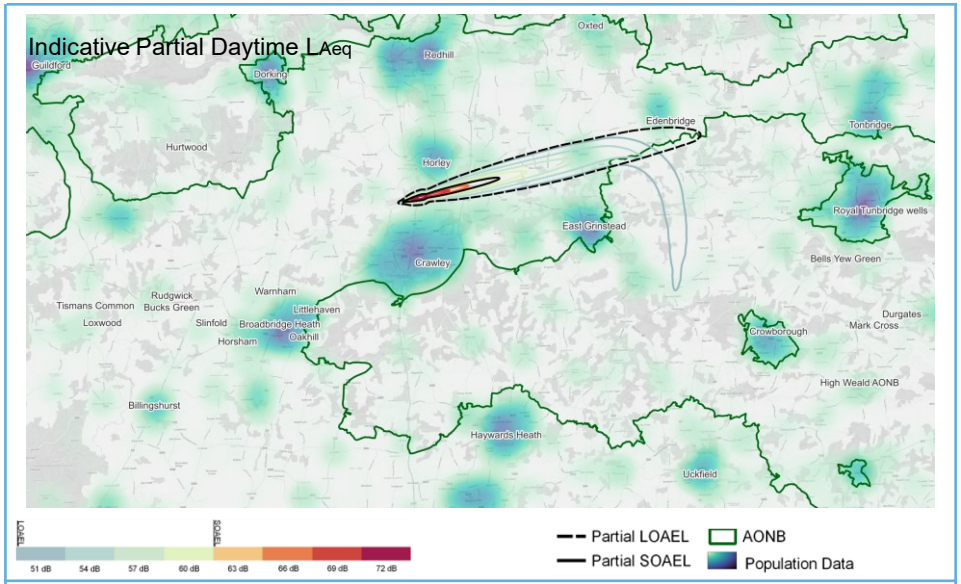
Option Name	Noise			Air Quality	Tranquillity (Overflight area km^2)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAQ	21510	11218	14788	No	25.9	0	0	No
Interdependencies, conflicts & trade-offs								
Option has interactions with some departure routes that would be complex to integrate. This is due to the later turn onto final approach which results in the arrivals being in closer proxity to departing traffic where it is difficult to main required separation standards between routes.								

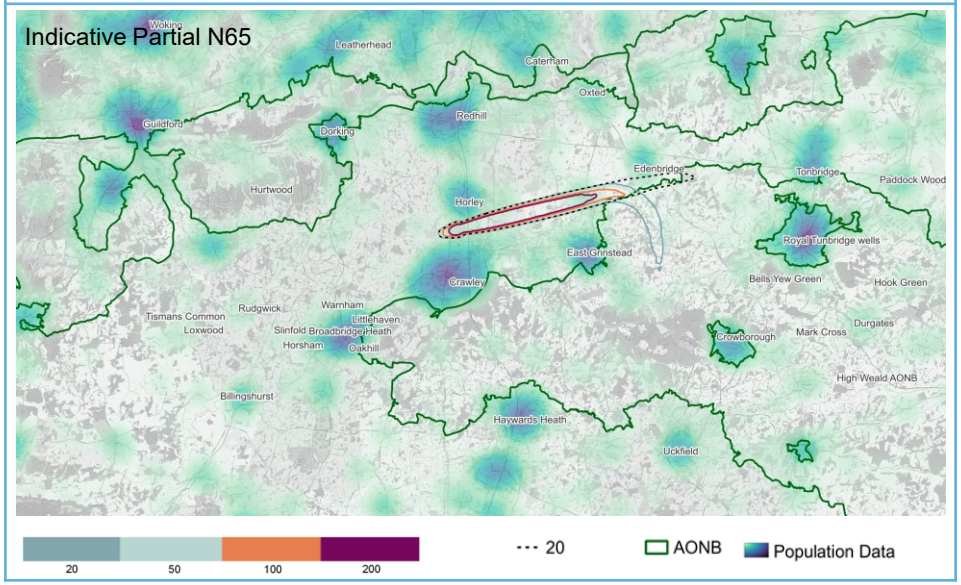
FASI-S ACP Initial Options Appraisal Dashboard

Option

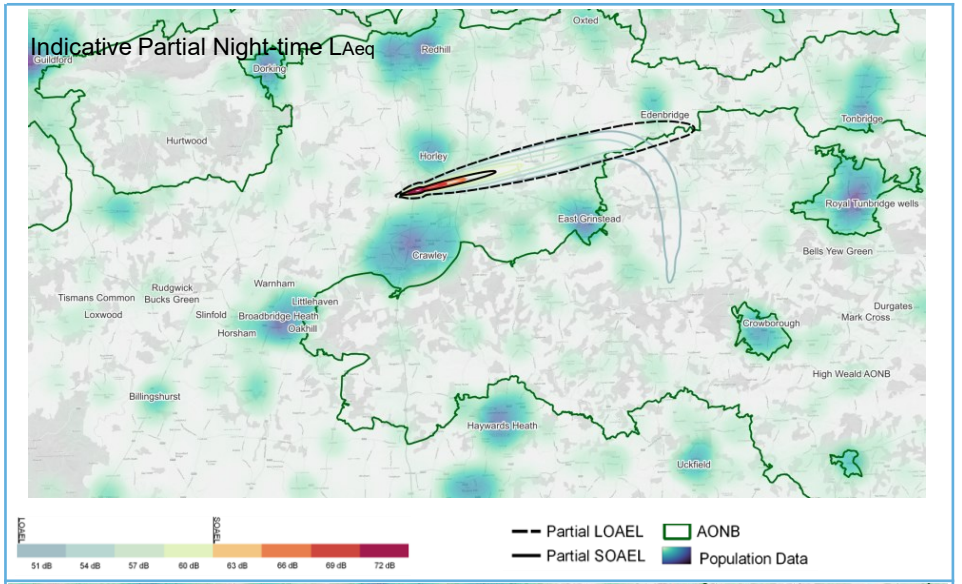
Westerly Arrivals: WAQ

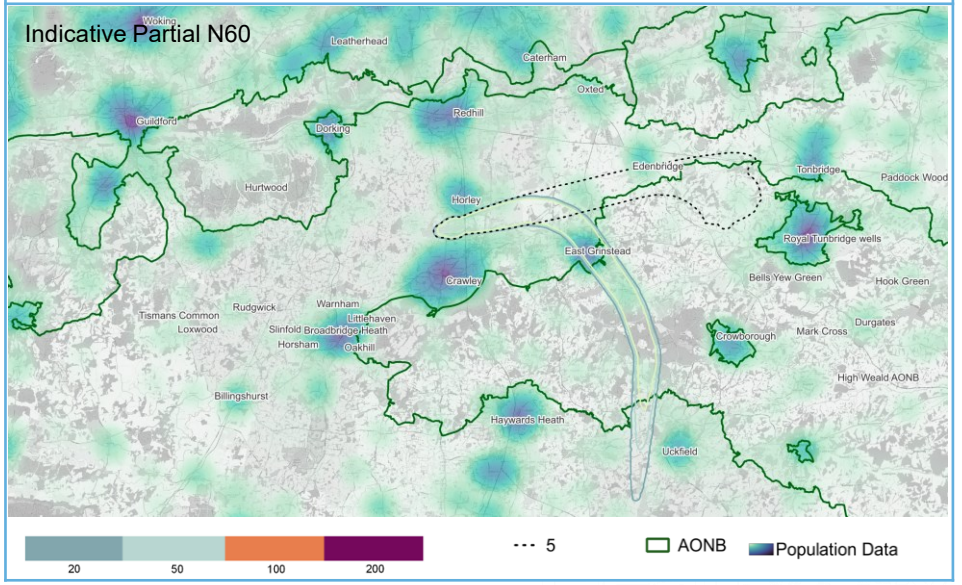
Day





Night





FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAD/WAE North

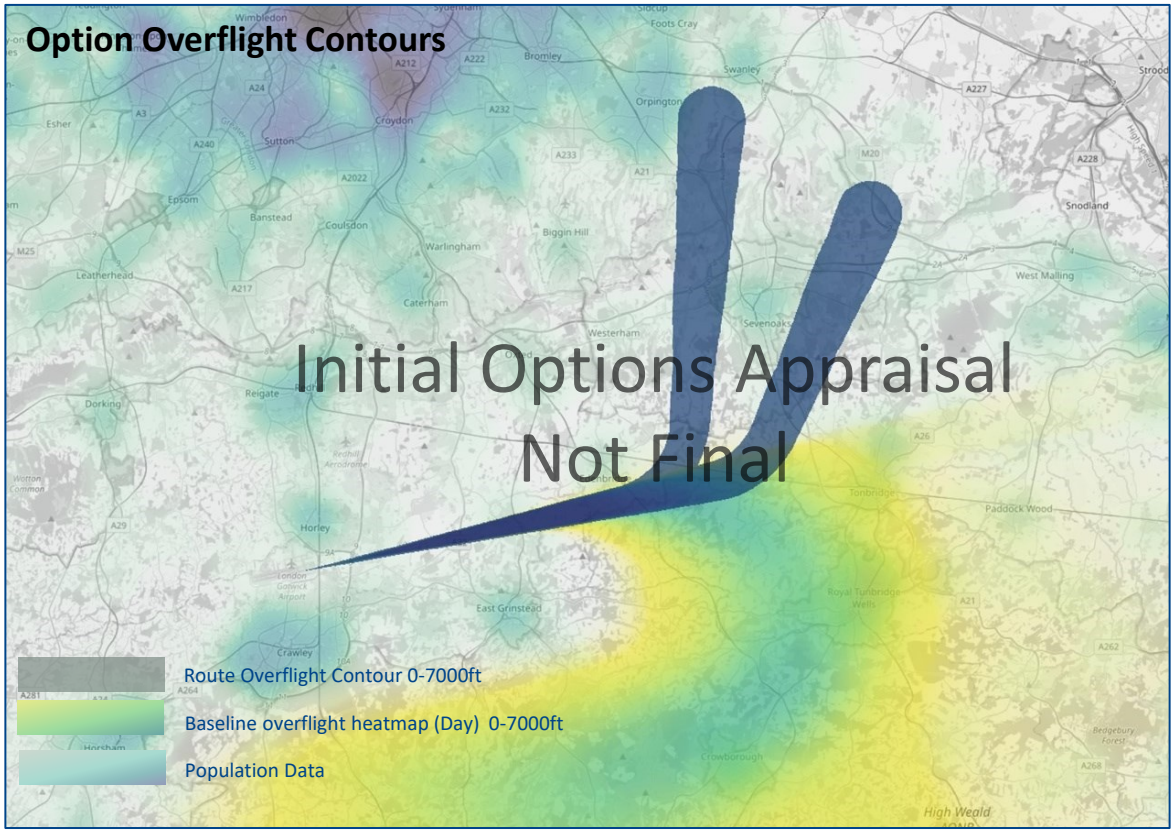
Description

These two northerly arrival routes join final approach at Route A: 9.5nm, Route B: 12.5nm. When developing this option there was a focus on meeting DP3 (limit adverse noise effects), DP7 (Long term predictability and adaptability) and minimise total population overflown. DP1, DP2, DP4, DP5, DP7, DP8, DP9 and the AMS were also considered.
Note these routes are assumed to be available on a tactical basis and have been assessed with an optimistic 10% of arrivals flying them. For more information, please see the methodology section of the Step 2B IOA document

Noise

These arrivals from the north are expected to be operated by a small percentage of traffic and hence they have minimal impacts in terms of LOAEL and N60/N65 noise metrics.
Should these routes progress, at Stage 3 further investigation will be undertaken around the integration of these with the wider airspace network, the descent profile expected and the frequency the routes are expected to be operated. This information would inform further quantitative noise analysis.

Overflight Illustration



Airspace Modernisation Strategy

Supports the AMS through the implementation of PBN arrivals which would be for noise and environmental mitigation purposes as set out in the Government's Air Navigation Guidance. PBN arrivals are expected to be used in conjunction with an RMA as part of wider a system design which could enable simplification, integration, safety and efficiency enhancements.

Safety

No IFP design issues are anticipated with this option. The routes have significant interactions with neighbouring airports that would require investigation.

The more approaches available the higher the changes of a safety error by ATC or Pilots. In order to mitigate this risk, additional assurance work would be required with a safety argument generated. This expected to be achievable but would require further investigation as part of Stage 3 activity should this option progress.

FASI-S ACP Initial Options Appraisal Dashboard

Option

Westerly Arrivals: WAD/WAE North

Indicative Partial System Performance (Note: available on a tactical basis. Estimated 10% of arrival traffic)

Noise	*Population*	Difference to Baseline
LOAEL (Day)	268	n/a
LOAEL (Night)	0	n/a
N65 (20)	2562	n/a
N60 (5)	0	n/a

Tranquillity	Area *(KM²)*	Difference to Baseline
AONB - N65 (20)	0	n/a

Emissions	Qualitative Conclusion
Fuel Burn & Greenhouse Gas	*Expected positive compared to baseline*

Economic	Qualitative Conclusion
Commercial Airlines	*No impacts expected*
General Aviation	*No impacts expected*

General Aviation	Qualitative Conclusion
Controlled Airspace Volume	*Not expected to require additional CAS*
GA Access	*No impacts anticipated*

Capacity / Resilience	Qualitative Conclusion
Capacity / Resilience	*No change expected*

Costs	Qualitative Conclusion
Commercial Airlines Training	*No costs identified*
Commercial Airlines Other	*No costs identified*
Airport / ANSP Infrastructure	*No costs identified*
Airport / ANSP Operational	*Costs identified*
Airport / ANSP Deployment	*Costs identified*

Option Name	Noise			Air Quality	Tranquillity (Overflight area km^2)	Biodiversity (RAMSAR, SEC, SPA, SSSI overflown between 0-1640ft		Continued?
	Overflight Daytime / Nighttime (1) (Population)	Population Newly overflown Daytime (1)	Population Newly overflown Nighttime (1)			Number of sites overflown between 0-1640ft	Area (km2) of sites overflown between 0-1640ft	
WAD/WAE North	18858	14389	14581	No	82.9	0	0	Yes
Interdependencies, conflicts & trade-offs								
Routes from the north and northwest would only be available on a tactical basis due to interactions with Heathrow, Gatwick departures, and Biggin Hill traffic. Further collaborative work with these airports would be required to investigate this in further detail once shortlists of options are known.								