

	<b>Safety &amp; Airspace Regulation Group</b>	<b>DAP 1E</b>
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<b>Title of Airspace Change Proposal</b>	<b>Newcastle International Airport – RNAV SIDs</b>
<b>Change Sponsor</b>	<b>Newcastle International Airport</b>
<b>DAP Project Leader</b>	
<b>Case Study commencement date</b>	<b>2 May 2014</b>
<b>Case Study report as at</b>	<b>22 September 2014</b>
<b>Report Reference</b>	<b>SARG/ERCD/AG/Newcastle RNAV SIDs</b>

<p><b>Instructions</b></p> <p>In providing a response for each question, please ensure that the ‘Status’ column is completed using the following options:</p> <ul style="list-style-type: none"> <li>• <b>Yes</b></li> <li>• <b>No</b></li> <li>• <b>Partially</b></li> <li>• <b>N/A</b></li> </ul> <p>To aid the SARG Project Leader’s efficient Project Management it may be useful that each question is also highlighted accordingly to illustrate what is resolved ( <span style="background-color: green; color: black;">Green</span> ), <b>not resolved</b> ( <span style="background-color: yellow; color: black;">Amber</span> ) or <b>not compliant</b> ( <span style="background-color: red; color: black;">Red</span> ) as part of the SARG Project Leader’s efficient project management.</p>
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<b>1.</b>	<b>Introduction</b>	
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This report describes the environmental considerations relevant to the proposed introduction of three P-RNAV SIDs at Newcastle International Airport.

This assessment is based upon information presented in the proposal document entitled “Newcastle International Airport, Airspace Change Proposal, SID & OMNI Departures” (18 April 2014), plus associated consultation material and subsequent information received as the result of queries raised with the sponsor following submission of the ACP.

<b>2.</b>	<b>Guidance to the CAA</b>	<b>Status</b>
<b>2.1</b>	<b>Is the proposal consistent with Government policy and/or guidance from Government to the CAA?</b>	<b>Yes</b>

Guidance issued to the Civil Aviation Authority<sup>1</sup> sets out a framework for the environmental objectives that the CAA must consider when assessing airspace change proposals. In addition to these objectives, there may be other legitimate operational objectives, such as the overriding need to maintain an acceptable level of air safety, the desire for sustainable development or to enhance the overall efficiency of the UK airspace network, which need to be considered alongside these environmental objectives. The Government looks to the CAA to determine the most appropriate balance between these competing characteristics.

Flights over National Parks and AONBs are not prohibited by legislation<sup>2</sup> as a general prohibition against over-flights would be impractical. Government policy focuses on minimising the over-flight of more densely populated areas below 7,000 feet (amsl), but balances this with CO<sub>2</sub> emissions between 4,000 and 7,000 feet (amsl). However, where it is practical to avoid over-flight of National Parks and AONBs below 7,000 feet (amsl), the Guidance asks that the CAA encourages this.

<b>3.</b>	<b>Rationale for the Proposed Change</b>	<b>Status</b>
<b>3.1</b>	<b>Does the rationale for the ACP include environmental reasons?</b>	<b>Yes</b>

The sponsor’s justifications for the proposed changes are:

<sup>1</sup> DfT, Guidance to the Civil Aviation Authority on Environmental Objectives Relating to the Exercise of its Air Navigation Functions, January 2014

<sup>2</sup> National Parks and Access to the Countryside Act 1949, National Parks (Scotland) Act 2000, and “Duties on relevant authorities to have regard to the purposes of National Parks, Areas of Outstanding Natural Beauty (AONBs) and the Norfolk and Suffolk Broads Guidance Note”, DEFRA 2005.

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- **Air Traffic Control:**
  - It will reduce the risk of a wrong read-back.
  - To avoid Currock Hill Gliding site.
  - To more accurately fly between the villages of Heddon and Throckley.
- Airlines are supportive because (among other reasons cited by the sponsor) they believe that the change will reduce noise, reduce emissions and have fuel savings.
- For the general public:
  - “Because P-RNAV is so accurate, it will mean that the spread of aircraft on departure will be reduced and therefore the noise footprint will also be reduced.”
  - “The only possible change seen by those on the ground will be a tighter spread and more accurate flying of these routes by aircraft departing Newcastle.”

4.	Nature of the Proposed Change	Status
4.1	Is it clear how the proposed change will operate, and therefore what the likely environmental impacts will be?	No

**Note – whilst the proposal is for the three SIDs noted below, the GIRLI 3X SID is in the process of being re-designed and so is not part of this report.**

Three P-RNAV SIDs are proposed, all of which terminate at GIRLI, 20nm south of the airport. They connect traffic with the P18 airway:

- GIRLI 1T – from Runway 07, heading south.
- GIRLI 3X – from Runway 25, heading south west
- GIRLI 3Y – from Runway 25, heading south east (to be used when Currock Hill Gliding site is in use)

In the proposal documentation there is no overlay of the proposed SIDs onto the existing traffic patterns, and so it is difficult to gauge the extent to which the proposed SIDs match the existing traffic patterns. Specifically:

- GIRLI 1T compared with the diagram on page 8 of the proposal. The scale of the two maps differs. Is traffic on the southbound portion of the SID expected to be as dispersed as the pattern on page 8 shows?
- GIRLI 3X compared with the diagram on page 6 of the proposal. The scale of the two maps differs. The diagram on page 6 doesn't show the traffic pattern much beyond Heddon and Throckley.

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- GIRLI 3Y – there is no illustration of current traffic to compare with this SID.

From the proposal, the sponsor advises that:

- There are no changes to the dimensions of current airspace.
- There is an expectation that P-RNAV will further reduce the dispersion of exiting traffic patterns (i.e. concentration of traffic).
- No change to climb gradients.
- The proposal is not expected to result in an increase in traffic over and above any existing anticipated increase.
- Approximately 67% of traffic of IFR traffic is expected to use one of the three SIDs.

The consultation included three OMNI-directional departures but it appears that these have not yet been formally designed. They are illustrated in the consultation document, but not in the proposal document and more specifically there is no mention of them in the environmental section of the proposal. For that reason they have not been considered as part of this report.

The presentation of diagrams in the consultation was generally poor. Inconsistent scales, orientation, sizes and colouring make them difficult to compare and interpret. In some cases the choice of colouring for the radar tracks make them difficult to distinguish from the map they are portrayed upon, e.g. Figures 2 & 4. And none of the diagrams show the new SIDs overlaid onto current, recent traffic patterns so that an easy comparison can be made to gauge the extent to which the SIDs will replicate current traffic patterns.

- Figure 1 – shows tracks from one day in August 2000
- Figure 2 – shows tracks from one day in August 2004
- Route 3 (page 9) has been narrowed.

<b>4.2</b>	<b>Have alternative options been considered, and have the environmental impact of each alternative been assessed?</b>	<b>No</b>
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A “Do nothing” option considered but not felt to be viable by the sponsor because “the procedures would need to be examined again in the future”.

As the aim was to replicate existing departing traffic patterns, no other options have been considered other than the proposal.

<b>5.</b>	<b>Noise</b>	<b>Status</b>
<b>5.1</b>	<b>Has the noise impact been adequately assessed?</b>	<b>Partially</b>

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The sponsor's proposal confirms that:

- $L_{eq}$  contours have not been produced because the proposal will not entail changes to departure routes below 4,000ft;
- SEL footprints have not been produced because the proposal will not change the distribution of flights at night below 7,000ft and within 25km of the runway.

However, there is no explanation or recognition in the proposal that some people are likely to be overflown with greater frequency due to the concentration of traffic arising from P-RNAV SIDs.

The proposal makes the statement "Because P-RNAV is so accurate, it will mean that the spread of aircraft on departure will be reduced and therefore the noise footprint will also be reduced." It is not clear what the sponsor means by "noise footprint" in this context, and there is no assessment to support the statement. Not comment is made of the possibility that P-RNAV is also likely to mean some people will be overflown with greater frequency due to a reduced dispersion of traffic.

The proposal makes the statement "The only possible change seen by those on the ground will be a tighter spread and more accurate flying of these routes by aircraft departing Newcastle." It is not clear whether this means that the sponsor expects no residents to notice any difference, particularly in terms of noise.

The DfT's Air Navigation Guidance advises that noise is a consideration for traffic below 7,000ft. It is no apparent from the that consultation and proposal if the sponsor has considered the impact up to this altitude – but if the proposal does not affect traffic patterns below this altitude, then there should be no noise impact.

<b>5.2</b>	<b>Has the noise impact been adequately presented in the consultation and the submitted proposal?</b>	<b>Partially</b>
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Based on the 2006  $L_{eq}$  contours which are publicly available as part of the airport's Noise Action Plan, any concentration of traffic resulting from the SIDs will occur beyond the 57 dBA contour and therefore unlikely to have an impact upon the  $L_{eq}$  contours. However, this was not explained by the sponsor in its consultation.

The consultation document contains a number of inconsistencies and/or poorly presented information:

- Section 1.1 – states that once reaching the end of an NPR, aircraft will continue to follow the SID until joining an airway. This seems to conflict with statements in the proposal that suggest aircraft will not remain on the SID and will be tactically vectored once able to do so (Section D of the Environmental Report). The statement could have given a false impression to consultees that traffic would remain concentrated on the SID for its entire length.

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- Section 2.0 - The consultation states that there will be no change to vertical/climb profile of the departure routes. This seems to conflict with the assertion in the proposal that the ACP will mean that aircraft will be given a continuous climb.
- Page 6 – “As you can see on the next page, the proposed SID replicates and in fact will reduce the swathe of aircraft further due to the accuracy of P-RNAV”. This is misleading – the diagram on page 7 shows only a SID. It doesn’t show a swathe or any existing traffic pattern, and it doesn’t explain what the other diagram it is meant to be compared with.
- Page 11 – “As you can see on the next page, the proposed SID replicates and in fact will reduce the swathe of aircraft further due to the accuracy of P-RNAV”. This is misleading – the diagram on page 12 shows only a SID. It doesn’t show a swathe or any existing track pattern, and it doesn’t explain what other diagram it is meant to be compared with.
- Section 3.3 – explains that the noise and track keeping system will be used for compliance monitoring, but there is no explanation of any swathe width or length and so no indication of what “non-compliance” might mean.

Accepting that neither  $L_{eq}$  contours nor SEL footprints are likely to be affected by the proposed SIDs, the presentation of noise information in terms of diagrams and statements is arguably confused and could have meant that consultees had a poor understanding of the impact.

<b>6.</b>	<b>Emissions</b>	<b>Status</b>
<b>6.1</b>	<b>Has the impact on CO<sub>2</sub> emissions been adequately assessed?</b>	<b>Partially</b>

Despite a statement (in Section D of the Environmental Report within the proposal) that the implementation of P-RNAV SIDs is “highly unlikely to impact upon emissions”, the proposal then also cites reasons why less fuel will be burned:

- Less fuel uplifted due to greater predictability of departure route;
- Traffic will not fly the full length of the SID but instead will be vectored off the SID onto a more direct route (though it is not clear if this intervention differs from the current procedure). Equally, this statement appears to be inconsistent with the claim in the previous bullet regarding greater predictability;
- Aircraft will be given a continuous climb above the SID limit (though it is not apparent why this is a direct result of introducing P-RNAV SIDs and couldn’t be achieved currently).

There is no assessment or attempt to estimate or offer evidence for any of these impacts.

If the SIDs do replicate the current traffic patterns such that there are no changes to either track mileage or vertical profile, then it is fair to conclude that there will be no impact on CO<sub>2</sub> emissions and therefore no assessment is necessary.

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<b>6.2</b>	<b>Has the impact on CO<sub>2</sub> emissions impact been adequately presented in the consultation and the submitted proposal?</b>	<b>Partially</b>
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The presentation of the expected impact on CO<sub>2</sub> emissions is confusing. It is unclear whether the sponsor is expecting no impact (because traffic will be unaffected) or is expecting benefits (due to less fuel burn).

<b>7.</b>	<b>Local Air Quality</b>	<b>Status</b>
<b>7.1</b>	<b>Has the impact on Local Air Quality been adequately assessed?</b>	<b>No</b>

The sponsor has not undertaken an assessment of LAQ impact on the grounds that there are no changes below 3,000ft, i.e. the SIDs replicate the existing traffic pattern. If traffic is unchanged, then the decision to omit an LAQ assessment is reasonable. Equally, an LAQ assessment is only required if there is an Air Quality Management Area (AQMA) that could be affected by the proposal; in this instance there are none in the vicinity of the airport.

However, the proposal tries to claim a LAQ benefit due to a decrease in fuel burn – but not only is the reduction in fuel burn an unsupported assertion, any such reduction of emissions will not occur in the vicinity of the airport anyway.

<b>7.2</b>	<b>Has the impact on Local Air Quality been adequately presented in the consultation and the submitted proposal?</b>	<b>Yes</b>
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Whilst the proposal outlines why there is no need for an LAQ assessment, the consultation makes no mention of LAQ. On the basis that there is unlikely to be any impact upon LAQ, this omission from the consultation document is not material.

<b>8.</b>	<b>Tranquillity</b>	<b>Status</b>
<b>8.1</b>	<b>Has the impact on tranquillity been adequately considered?</b>	<b>Yes</b>

There is no comment upon tranquillity in either the consultation material or the proposal so it is not clear to what extent it was considered by the sponsor.

<b>8.2</b>	<b>Has the impact on tranquillity been adequately presented in the consultation and the submitted proposal?</b>	<b>Yes</b>
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Not only are there no AONBs or National Parks within the vicinity of the airport or the SIDs, but if the SIDs are expected to have no impact on traffic patterns then there would be no impact upon tranquillity. For those two reasons, the omission of any comment on tranquillity is not an issue.

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<b>9.</b>	<b>Visual Intrusion</b>	<b>Status</b>
<b>9.1</b>	<b>Has the impact of visual intrusion been adequately considered?</b>	<b>Yes</b>

There is no comment upon visual intrusion in either the consultation material or the proposal so it is not clear to what extent it was considered by the sponsor.

<b>9.2</b>	<b>Has the impact of visual intrusion been adequately presented in the consultation and the submitted proposal?</b>	<b>Yes</b>
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Not only are there no AONBs or National Parks within the vicinity of the airport or the SIDs, but if the SIDs are expected to have no impact on traffic patterns then there would be no impact upon visual intrusion. For those two reasons, the omission of any comment on visual intrusion is not an issue.

<b>10.</b>	<b>Biodiversity</b>	<b>Status</b>
<b>10.1</b>	<b>Has the impact upon biodiversity been adequately considered?</b>	<b>Yes</b>

There is no comment upon biodiversity in either the consultation material or the proposal so it is not clear to what extent it was considered by the sponsor.

<b>10.2</b>	<b>Has the impact upon biodiversity been adequately presented in the consultation and the submitted proposal?</b>	<b>Yes</b>
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If the SIDs are expected to have no impact on traffic patterns for traffic growth then there would be no impact upon biodiversity. For that reason, the omission of any comment on biodiversity is not an issue.

<b>11.</b>	<b>Continuous Descent Approaches</b>	<b>Status</b>
<b>11.1</b>	<b>Has the implementation of, or greater use of, CDAs been considered?</b>	<b>No</b>

No – CDAs are not relevant for this proposal.

<b>12.</b>	<b>Impacts Upon National Parks and/or AONBs</b>	<b>Status</b>
<b>12.1</b>	<b>Does the proposed change have an impact upon any National Parks or Areas of Outstanding Natural Beauty (AONBs)?</b>	<b>No</b>

The statutory purposes of National Parks are to conserve and enhance their natural beauty, wildlife, and cultural heritage and to promote opportunities for the understanding and enjoyment of their special qualities by the public. The statutory purpose of AONBs is to conserve

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and enhance the natural beauty of their area. In exercising or performing any functions in relation to, or so as to affect, land in National Parks and AONBs, the CAA is required to have regard to these statutory purposes<sup>3</sup> under s.19 and Schedule 2 of the Civil Aviation Act 1982. This duty was re-stated in the revised Air Navigation Guidance issued in 2014.

This duty was also reiterated in the Aviation Policy Framework (March 2013) which stated “the CAA has legal duties to have regard to the purposes of National Parks and Areas of Outstanding Natural Beauty and must therefore take these into account when assessing airspace changes.”

Whilst recognising this duty it is also true that flights over National Parks and AONBs are not prohibited by this legislation as a general prohibition against over-flights would be impractical.

In the case of this proposal, no National parks or AONBs are affected.

<b>13.</b>	<b>Traffic Forecasts</b>	<b>Status</b>
<b>13.1</b>	<b>Have traffic forecasts been provided, are they reasonable, and have these been used to reflect the future impact of the proposal?</b>	<b>No</b>
No traffic forecasts have been provided, but the sponsor advises that the proposal is not predicated on traffic growth, and traffic growth will not be affected if the proposed SIDs are implemented. On that basis, the exclusion of forecasts is reasonable.		
<b>14.</b>	<b>Consultation</b>	<b>Status</b>
<b>14.1</b>	<b>If undertaken, has evidence of non-aviation stakeholder consultation been provided?</b>	<b>Yes</b>
Parish Councils, and some NGOs were included in the consultation.		
<b>14.2</b>	<b>Has account been taken of the results of the environmental factors raised by consultees or has evidence been provided to indicate why this has not been possible?</b>	<b>Yes</b>

<sup>3</sup> S.11(A) of The National Parks and Access to the Countryside Act 1949 (in England and Wales), National Parks (Scotland) Act 2000, and “Duties on relevant authorities to have regard to the purposes of National Parks, Areas of Outstanding Natural Beauty (AONBs) and the Norfolk and Suffolk Broads Guidance Note”, DEFRA 2005.

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Of the 21 consultation responses, only a few make reference to environmental impacts. But where they do comment, they have clearly accepted the sponsor's general claims about a reduction in noise and emissions.

However it should be noted that the consultation document has no comment on the extent (or otherwise) of the environmental impact other than in terms of general benefits for airlines. There is only one statement on environmental impacts with no supporting explanation or evidence. For that reason it is perhaps not surprising that there were so few responses that made any reference to the possible environmental impacts.

<b>15.</b>	<b>Compliance with CAP 725</b>	<b>Status</b>
<b>15.1</b>	<b>Have all environmental assessment requirements specified in CAP 725 been met, where applicable?</b>	<b>Yes</b>

All specific requirements have been met if it is accepted that the proposal has no environmental impact.

<b>16.</b>	<b>Other Aspects</b>	<b>Status</b>
<b>16.1</b>	<b>Are there any other aspects of the ACP, that have not already been addressed in this report, that may have a bearing on the environmental impact?</b>	<b>No</b>

The sponsor believes that the proposal will have no impact upon General Aviation and therefore no indirect environmental impacts arising from changes to GA traffic patterns. Transit routes remain unaffected and a Letter of Agreement with the Currock Hill Gliding site remains in place.

<b>17.</b>	<b>Recommendations</b>	<b>Status</b>
<b>17.1</b>	<b>Are there any recommendations for the Post-Implementation Review?</b>	<b>Yes</b>

It is recommended that pre- and post-implementation traffic patterns for traffic up to 7,000ft it compared to determine if any noise impacts have changed as a result of the new SIDs.

<b>18.</b>	<b>Government Approval</b>	<b>Status</b>
<b>18.1</b>	<b>Is the approval of the Secretary of State for Transport required in respect of the environmental impact of the airspace change proposal?</b>	<b>No</b>

No – approval is not required for this proposal.

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<b>19.</b>	<b>Conclusions</b>	
<b>19.1</b>	<b>Can an overall environmental benefit be demonstrated (or justified/supported)?</b>	<b>No</b>

No – an environmental benefit has not been demonstrated despite generalised claims that benefits will occur. There are various inconsistencies within the consultation document and proposal document (coupled with some poorly presented diagrams) which mean it is not evident what the impact will be of introducing these P-RNAV SIDs. It is not even clear whether the sponsor is claiming there will be no environmental impact at all, or whether it expects environmental benefits to be achieved.

Much of the possible environmental impact rests upon the sponsor's assertion that the new SIDs replicate existing traffic patterns. If that is the case, then it is reasonable to conclude that there would be no change to the noise metrics ( $L_{eq}$  contours and SEL footprints). However, the potential for P-RNAV to narrow the dispersion of traffic is underplayed by the sponsor, and if such a narrowing occurs then some households will experience being overflown with greater frequency (though other households should also experience fewer overflights).

One thing that the consultation and proposal do not explain clearly is that introducing P-RNAV SIDs is likely to lead to greater track accuracy for departing aircraft, which not only means fewer people should be overflown, but also means that some people are likely to be overflown more often as the previous dispersion of traffic will become narrower and more focused. This ultimately means that some residents may experience a worse noise impact if they are overflown more often, and it is questionable whether this aspect was adequately conveyed in the consultation material

If SARG is satisfied that the introduction of the P-RNAV SIDs consulted upon will not change traffic patterns, profiles and dispersion then:

- It is unlikely that  $L_{eq}$  contours and SEL footprints will be unaffected;
- There will be no noise impact, other than some residents possibly experiencing a greater number of overflights due to a concentration of traffic arising from P-RNAV;
- There will be no impact on CO<sub>2</sub> emissions, positive or negative.

<b>Outstanding Issues</b>		
<b>Serial</b>	<b>Issue</b>	<b>Action Required</b>
	Are we now satisfied that all suitably equipped aircraft using the airport can fly the SIDs as designed?	

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<b>Additional Compliance Requirements (to be satisfied by Change Sponsor)</b>	
<b>Serial</b>	<b>Requirement</b>

<b>Environmental Assessment Sign-off/Approvals</b>			
	<b>Name</b>	<b>Signature</b>	<b>Date</b>
<b>Environmental Assessment completed by</b> [REDACTED]	[REDACTED]		22 Sept 2014
<b>Environmental Assessment approved by</b> [REDACTED]	[REDACTED]		