Uttlesford
District Council

Chief Executive: John Mitchell

STAAP

Date: Monday, 23 November 2015
Time: 19:00
Venue: Council Chamber

Members: Councillors Keith Artus (Chairman), John Davey, Terry Farthing, Paul Fairhurst, Martin Foley, Rory Gleeson, Thom Goddard, John Lodge, Edward Oliver and Howard Ryles

AGENDA

1	Apologies for absence and declarations of interest.	
2	Minutes of the Meeting held on 3 September 2014	3 - 8
3	Matters arising	
4	Presentation from MAG on RNP1 (RF) Trial at Stansted Airport	
5	RNP1 (RF) Trial at Stansted Airport	9 - 26
6	Any other items which the Chairman considers to be urgent	

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STANSTED AIRPORT ADVISORY PANEL MEETING held at COUNCIL OFFICES LONDON ROAD SAFFRON WALDEN at 7pm on 3 SEPTEMBER 2014

Present: Councillor J Cheetham (Chairman)
Councillors A Dean, E Godwin, D Jones, M Lemon and J Rich.

Officers in attendance: R Harborough (Director of Public Services), J Pine (Planning Policy/ DM Liaison Officer) and A Rees (Democratic Services Support Officer).

Also present: Councillors C Cant, M Felton, E Hicks, J Menell, E Oliver and L Wells and Martin Peachey (Stansted Noise and Track Keeping Working Group).

SAP8 **APOLOGIES FOR ABSENCE AND DECLARATIONS OF INTEREST**

Apologies for absence were received from Councillors Artus, Mackman Perry and Rose.

Councillor Cheetham declared non-pecuniary interests as a member of NWEEPHA and of the Hatfield Forest Management Committee.

Councillor Dean declared a non-pecuniary interest as a member of Stop Stansted Expansion.

SAP9 **MINUTES**

The minutes were signed by the Chairman as a correct record.

SAP10 **MATTERS ARISING**

Minute SAP3 – Airports Commission – Update

Since the last Panel meeting, the Council had responded to the Commission's latest discussion paper "Utilisation of the UK's Existing Airport Capacity" and to the Mayor's Crossrail 2 consultation.

SAP11 **CONSULTATION ON NATS DEPARTURE ROUTE PROPOSAL AT STANSTED AIRPORT**

The Planning Policy/ DM Liaison Officer said that this proposal, which was promoted by NATS and London Stansted Airport, aimed to switch most daytime traffic from the Dover Standard Instrument Departure (SID) to the Clacton SID. Night-time departures were not part of the consultation. Three reasons had been given by the sponsors of the proposal for making the change, they were; i) a reduction in the number of people regularly

overflown, ii) reduced delays for passengers and iii) reduced CO^2 emissions and fuel burn. The Planning Policy/DM Liaison Officer said NATS have pointed out that airlines may already choose to fly the Clacton SID in order to avoid London airspace. This proposal was part of Phase 1 of a wider programme of airspace modernisation known as the London Airspace Management Programme (LAMP). LAMP Phase 2 would be subject to a separate consultation at a later date, with implementation due in 2018/9.

The Planning Policy/ DM Liaison Officer explained that 70% of aircraft took-off on Runway 22 and 30% on Runway 04. Departures from Runway 22 using the Dover SID currently climbed over Tilekiln Green, Great and Little Hallingbury and continued over Hatfield Heath. Those using the Clacton SID turned more sharply over Hatfield Heath. Runway 04 departures using the Clacton SID climbed over Broxted and began to straighten out over Great Easton. Runway 04 departures on the Dover SID turned very sharply south to the east of Broxted, passing to the west of Little Easton and Great Dunmow.

85% of flights on the Clacton SID were able to achieve continuous climb to 7,000ft, whilst this figure was only 10% on the Dover SID. The reason for this is the flights are held below 7,000ft until they reach South Essex / North Kent so that they do not conflict with Heathrow arrivals. At night the figures for continuous climb for the SIDs were comparable due to the lower number of Heathrow arrivals.

The Planning Policy/ DM Liaison Officer said that there was no “win-win” situation for local residents. It was realistic to assume that the proposal would be implemented as it would relieve congestion in the London airspace. Evidence provided by NATS as part of the consultation showed that use of the Clacton SID (based on 2012 data) would increase from about 51 flights per day to 109 per day. The airport had planning permission that enabled its current throughput to double from 17.46 million passengers per annum (mppa) to 35mppa. It was realistic to expect the number of departures to double as well.

Population data provided by NATS showed that 1,470 fewer people living under the Dover SID would be regularly overflown, but there would be 2,400 people living under the Clacton SID who would experience more overflying. The Clacton SID also overflew Great Easton Primary School, which would experience double the current level of overflying on days when the school was open and Runway 04 was in use. Northbound flights were not part of the consultation and so the north of the district would be largely unaffected.

Residents who lived further away from the airport under the Dover SID (such as those in South Essex or North Kent) would experience less noise benefit from the switch to the Clacton SID as aircraft are higher in those locations. In terms of tangible benefits between 4,000ft – 7,000ft, the consultation document stated the main benefit would be reduced CO^2 emissions. The estimated saving would in reality be negligible and would amount to less than 1%.

In response to questions from the Panel, the Planning Policy/ DM Liaison Officer said engine and airframe noise from turning planes was reflected downwards by the wings and so it could seem louder to residents who were not actually being overflown. As Hatfield Heath was at a point where the Dover and Clacton SIDs split, it should not be affected by a change of SID use. It was unclear exactly how the proposals would be affected by LAMP Phase 2.

Mr Peachey said he had been working with the Civil Aviation Authority (CAA). In his opinion, the noise impact of the proposal would be neutral. Any reduction in CO^2 emissions would be dependent on the traffic mix, as the savings on long haul flights would be less significant. NATS had recently had its best figure ever on delays and had implemented a new system which improved communication between its airports. This proposal only related to daytime flights, but night-time flight caused a disproportionate number of complaints. If there was continuous descent on the Runway 04 approach, noise levels would drop by around 5 decibels. Implementation of continuous descent would be the single largest improvement to the local noise environment that could be made.

Councillor Dean said the aim appeared to be to reduce congestion in London airspace and there was no reason to pick one part of the district over the other.

Councillor Cheetham said that given that LAMP Phase 2 was to begin in 2018, it was strange to propose these SID use changes now. Focussing on continuous descent should be the priority instead.

In response to questions from the Panel, Mr Peachey said that delays for passengers on the ground were normally very small and the consultation had taken into account increased airport usage. The Airport could eventually have problems during peak periods, but it would not be an issue now. When aeroplanes were under 4,000ft noise reduction was the priority, between 4,000 and 7,000ft the aim was to avoid population centres.

Councillor Rich said it was clear the driver was not a reduction in CO^2 emissions. His worry was that making changes now could establish protocols that could set a precedent that could be used to justify LAMP Phase 2 changes. The suggested response in paragraphs 29 and 30 of the report should form the basis of the Council's response.

Councillor Cheetham suggested that the response should state that it was no yet clear how the changes could be justified. Any change should be delayed until LAMP Phase 2 in 2018.

AGREED that the following response would be issued relating to the NATS consultation:

- As there is no "win-win" situation for local residents, extreme care must be taken in making a judgement about the merits or otherwise of this proposal. In the

Aviation Policy Framework (APF), the Government says that it wants *"to strike a fair balance between the negative impacts of noise (on health, amenity (quality of life) and productivity) and the positive economic impacts of flights"* (Paragraph 3.3). In Paragraph 3.12, the Government states that its overall policy on aviation noise is *"to limit and, where possible, reduce the number of people in the UK significantly affected by aircraft noise".* Under this proposal more people would experience more overflying than the number who would experience less, and there is also the effect to consider of increased overflying of Gt Easton Primary School. NATS and London Stansted Airport should therefore be asked to clearly explain to the CAA how this proposal would comply with Government policy in the APF and its guidance on environmental airspace design objectives. If this proposal is to be implemented, there should be a prior examination of whether the use of performance based navigation could reduce the effect on the primary school by either finding an optimal path within the Clacton 04 NPR swathe or by practicing dispersal.

- There may be wider benefits of this proposal from improved fuel efficiency, reduced CO^2 emissions, reduced passenger delays and reduced congestion in the London airspace. It is not clear, however, how these are to be weighed against Government policy and guidance on mitigating noise impacts below 4,000ft.
- It was unclear what justification there was for changing the usage of SIDs now, given that the LAMP Phase 2 consultation in 2018 was likely to significantly change the usage of London airspace.

SAP12 **DFT NIGHT FLYING RESTRICTIONS AT HEATHROW, GATWICK AND STANSTED**

The Planning Policy/ DM Liaison Officer said the Government had not proposed any significant changes and the three year regime to 2017 would retain the main features of the current regime. The movement limits had been the same since 2006/07 and the noise limits had remained the same since 2011/12.

The Government had received evidence during its Stage 2 consultation about an unforeseen increase in demand for night-time flights at Stansted, which would mean that the existing movements limit would impose additional industry costs by 2017. The Government has indicated that it was not convinced by the robustness of the projections, but will monitor the new regime from the outset for any actual operational implications. The Government had also proposed a number of environmental objectives for airports as these were required under EU law.

In response to a question by Councillor Cheetham, the Planning Policy/ DM Liaison Officer confirmed that the 2003 S106 agreement for expansion to 25mppa did oblige the airport operator not to seek any relaxation of the regime in force at that time. Whether these current rolled-forward restrictions counted as a new regime was a matter of conjecture. From what the Government had said, it did seem likely that it had already received representations about relaxing the existing movement limits at the airport. The key point was that the Government had not agreed any relaxation of the movement limit at this stage.

The Panel noted the report.

SAP13 **CIVIL AVIATION AUTHORITY – "MANAGING AVIATION NOISE"**

The Planning Policy/ DM Liaison Officer said the CAA had published "Managing Aviation Noise" on 29 May 2014. It was a useful document which could be used as evidence by the Council when dealing with aircraft noise matters. The key recommendations included incentivising operational approaches that mitigated noise, ensuring that residents benefitted more from additional capacity, airports that were seeking expansion to increase spending on noise mitigating measures, airlines focussing on noise performance when purchasing new aircraft and that landing charges should be structures to incentivise the use of less noisy aircraft.

The CAA was keen to encourage the use of noise envelopes that were linked to throughput increases. This had been picked up by the Airport Commission.

Councillor Cheetham said MAG had created more sub-groups which had improved dialogue between the Airport and the Council. The groups could be opened up more to include parish councils that are most affected by the Airport.

The Panel noted the report.

SAP14 **MAG DRAFT SUSTAINABLE DEVELOPMENT PLAN FOR STANSTED AIRPORT**

The Planning Policy/ DM Liaison Officer said that the Plan had been released on 2 September and was subject to a 10-week consultation period ending on 7November. In the Plan, MAG said it was committed to honouring its 35mppa planning obligations, but due to the length of time since they were established some have expired whilst others are potentially outdated. MAG said it would be working with the local authorities on a review of those obligations to ensure that they remain relevant and robust. MAG was also anticipating a growth in cargo operations, which might have longer term implications for the number of night flights.

It was expected that the Airport would reach 35 mppa by 2025 and 45 mppa by 2035. Given the current permissions in place it was likely that there would be a planning application for an additional 8mppa. That application would likely be determined by the Council as it would not count as a major infrastructure project.

SAP15 **DATE OF NEXT MEETING**

The date of the next meeting would be decided at a later date.

A meeting with MAG would be arranged to discuss the draft Sustainable Development Plan for Stansted Airport.

SAP16 **ANY OTHER BUSINESS**

In response to questions by the Panel the Planning Policy/ DM Liaison Officer said the issue of long waiting times to pass through security had been raised. A part cause of this was likely to be the ongoing terminal transformation project

Members discussed the proposed footpath / cycleway improvements from Takeley to the airport along Parsonage Road / Coopers End. Councillor Jones said despite correspondence about the footpath, progress on the scheme had stalled. Pressure needed to be put on the Airport so they fulfilled their obligation.

Councillor Rich said the most recent South Area Community Forum was very successful. The presentation by MAG highlighted that some small businesses in the district had more apprentices than the airport. Secondly, the Airport was not engaging enough with schools. It was important that members of the Panel were proactive in helping the Airport and schools work together.

Councillor Cant mentioned that passenger set down was no longer provided for in the Orange short stay car park. The Planning Policy / DM Liaison Officer confirmed that set down was now on the terminal forecourt, but pick up spaces continued to be provided in the Orange car park as per the 2003 planning obligation.

The meeting ended at 8.45pm.

Committee:	**Stansted Airport Advisory Panel**	**Agenda Item**
Date:	**23rd November 2015**	**5**
Title:	**RNP1 (RF) trial at Stansted Airport**	
Author:	**Jeremy Pine, Planning Policy / Development Management Liaison Officer on 01799 510460**	Key decision: **No**

Summary

1. This report is about a trial undertaken at Stansted Airport which uses modern navigational procedures to improve track keeping of departing aircraft. The airport operator, London Stansted Airport, is now consulting on whether these procedures should be formally adopted via an airspace change proposal which would be submitted to the Civil Aviation Authority (CAA). The report explains what the trial is, what the results are and how the Council should respond as part of the consultation.

Recommendation to Cabinet

2. That taking into account Government policy on noise, the Council should support the airspace change proposal as;
   i) it would result in fewer people being directly overflown by aircraft, and
   ii) it would give more certainty about the paths that departing aircraft take.

Financial Implications

3. None.

Background Papers

4. None

Impact

5.

Communication/Consultation	The consultation is being undertaken by London Stansted Airport. The consultation runs from 1/9/15 to 27/11/15, and has included community outreach events in Great Dunmow, Bishop's Stortford and Hatfield Heath.
Community Safety	None
Equalities	None

Health and Safety	None
Human Rights/Legal Implications	None
Sustainability	None
Ward-specific impacts	The trial has impacted: Broad Oak and The Hallingburys Great Dunmow North Great Dunmow South and Barnston Hatfield Heath Takeley Thaxted and The Eastons
Workforce/Workplace	Officer time in preparing this report, including attending one of the community outreach events

Situation

6. Aircraft departing from Stansted Airport use one of six Noise Preferential Routes (NPRs), which are the lower level initial sections of Standard Instrument Departure (SID) routes before they diverge. There are three NPRs at both ends of the runway, their use depending upon wind direction and then the aircraft's destination. Up to a height of 4,000ft, Government guidance identifies reducing local noise as the key environmental objective of airspace management. Between 4,000 – 7,000ft the key objective is to balance noise and CO^2 emissions, whereas above 7,000ft reducing CO^2 emissions has priority.

7. To reduce local noise, departing aircraft are required to keep to the relevant NPR until they have achieved a minimum height of 4,000ft when they can be vectored onto a more direct heading to their destination by Air Traffic Control. Each NPR is 3km wide (1.5km either side of the SID centreline), and is traditionally flown using ground based navigation techniques. Within each NPR, there will be a spread of departure tracks due to a number of factors influencing the position of an aircraft such as wind speed and direction and the aircraft's flight management system. At the ends of the NPRs, when aircraft are at 4,000ft, there is effectively a swathe of departure tracks taking up the full 3km width of the NPR.

   <u>The RNP1 (RF) trial</u>

8. Following discussion with local community representatives, London Stansted Airport decided to carry out a track keeping trial using modern global positioning system (GPS) navigational techniques (the RNP1 (RF) trial) to enable departing aircraft to fly as close as possible to the SID centreline. This was the first trial of this kind in the UK, the aim being to reduce the number of people being overflown. Reducing the number of people being overflown aligns with Government policy in the Aviation Policy Framework (APF):

"to limit and, where possible, reduce the number of people in the UK significantly affected by aircraft noise".

9. RNP refers to *Required Navigation Performance* which allows an aircraft to accurately fly a specific path between two defined points, an RNP of 1 meaning that a navigation system must be capable of calculating its position to within one nautical mile. RF refers to *Radius to Fix,* which is a radius about a fixed point to enable more accurate track keeping through turns, especially tighter ones.

10. For the trial, one SID was chosen at each end of the runway so that it could proceed irrespective of which runway was in use due to the wind direction. The following two SIDs were chosen:

    Runway 22 Clacton SID: RNP1 (RF) would reduce overflying of Hatfield Broad Oak and Hatfield Heath as the SID centreline runs between the 2 villages, and would also reduce overflying of Little Hallingbury

    Runway 04 Detling (formerly Dover) SID: RNP1 (RF) would improve departure track keeping compliance on what has traditionally been the least compliant SID due to the tight 160º southerly turn soon after take-off. This would result in reduced overflying of Little Easton and Great Dunmow.

11. The trial started in May 2013 with easyJet, initially for one month for data gathering and feedback purposes. After that period, other RNP1 (RF) approved operators joined the trial, which remains ongoing for data gathering purposes. However, the CAA will not allow open-ended trials and a decision now needs to be made on whether the RNP1 (RF) procedures should be adopted permanently for the two trialled SIDs, or dropped. London Stansted Airport estimates that 92% of all aircraft will be RNP1 (RF) equipped at the time of adoption, but by 2021 all aircraft will have to be so equipped.

12. London Stansted Airport has submitted the trial results to the CAA for review, and this consultation begins the formal airspace change process. This process will involve the collation and review of all feedback received, and the submission of a consultation feedback report to the CAA. After that, an airspace change proposal will be submitted to the CAA. The CAA will decide whether the airspace change proposal should be approved.

13. The consultation document and a list of frequently asked questions, published by London Stansted Airport, are attached as appendices to this report.

    <u>Outcome of the trial</u>

14. The headline results of the trial are set out on Pages 8 and 9 of the consultation document. The number of people directly overflown would reduce from 5,000 to 700, the largest reduction being under the Runway 22 Clacton SID. Adherence to the centreline of the SIDs would be greatly improved. On the Clacton SID, 99% of aircraft flying RNP1 (RF) are within a swathe of less than 500m (compared to 3km), whilst on the Detling SID the figure is 99% within a swathe of less than 420m. The trial has also indicated that all types of aircraft and sizes are able to fly the accuracy required by RNP1 (RF).

Consideration

15. As with all airspace change proposals, there are winners and losers. The 700 people who live under the SID centrelines will experience more overflying, but 4,300 people will experience less or no overflying, and the paths that aircraft take will be more certain. It is the experience of officers that people looking to move to the area and who enquire about the effect of aircraft noise appreciate more certainty over the paths that aircraft take, as it aids their judgement. Taking into account Government policy in the APF, it is considered that the Council should support the airspace change proposal.

Risk Analysis

16.

Risk	Likelihood	Impact	Mitigating actions
That the Council's views are not taken into account as part of the consultation process.	1. STAAP will make a recommendation to Cabinet, which will then decide how to respond to the consultation.	1. All residents are able to take part in the consultation process and express their views.	The Council responds to the consultation.

1 = Little or no risk or impact
2 = Some risk or impact – action may be necessary.
3 = Significant risk or impact – action required
4 = Near certainty of risk occurring, catastrophic effect or failure of project.

PERFORMANCE BASED NAVIGATION

New innovative technology to reduce the impact of aircraft noise on communities around Stansted Airport

FREQUENTLY ASKED QUESTIONS

What is a SID?

A 'SID' is a Standard Instrument Departure route with navigation design based on old ground based navigational aids. These conventional SID designs have been in place for decades and are now outdated by modern navigational and aircraft capabilities.

What does RNP1 (RF) stand for and what does it mean?

RNP1 stands for Required Navigational Performance of 1 Nautical Mile and is a modern navigation design standard for arriving and departing aircraft. RF stands for Radius to Fix and is defined as a radius about a fixed point to better enable track keeping accuracy around a turn.

Are the RNP1 (RF) SIDs new departure routes?

No, the RNP1 (RF) SIDs are not new departure routes. They have been designed to replicate as closely as possible the existing conventionally designed departure routes. We are not proposing any new routes, but by adopting these procedures we believe aircraft can fly the existing routes more accurately.

Why are you doing this now?

The trial conducted for the two RNP1 (RF) departure routes has been running for just over two years and will end in May 2016. We believe the trial has been a success and wish to adopt the RNP1 (RF) SIDs permanently.

Who are you consulting with?

We are consulting publically with those areas that are affected by the proposed changes. We have written to the relevant Parish Councils, to local MP's and Essex County Council. We have issued a press release detailing the start of the consultation and we encourage members of the public to participate in this consultation.

Where can we find more information?

More information can be found on the airport website;
www.stanstedairport.com/consultation

A copy of the full trial report can also be found at
http://www.stanstedairport.com/community/local-environmental-impacts/noise/

How long does the consultation last?

The consultation will commence on 1st September 2015 and will close on 27th November 2015.

Is this consultation connected to an extra runway/further expansion?

No, this has no connection to any extra runway or further expansion

Will more people be overflown?

No, the trial RNP1 (RF) procedures have proven that there will be fewer people overflown.

Will there be further changes to flight paths in the future?
We will always seek, where possible, to adopt best practice and to take advantage of the opportunities presented by new technologies. When we do so we will aim to minimise changes to existing flight paths where possible.

How does this project differ from last year's NATS consultation?
The NATS consultation in 2014 was about the wider airspace modernisation. The proposal was to move air traffic from the Detling departure route to the Clacton departure route during the busier daytime period. This RNP1 (RF) consultation is about adopting a modern SID design that all aircraft can fly more accurately. The two consultations are not related.

Why is this just for departures and not for arrivals?
At present we are only trialling two RNP1 (RF) departure procedures that replicate the existing SIDs. This was to prove the concept and ascertain the degree of accuracy and flyability of the procedures. Arrivals can also be designed to RNP1 standard and in future years this may be something that we develop and adopt.

Will every airline/aircraft follow the RNP1 (RF) routes?
No, only airlines/aircraft that have regulatory state approval can fly the RNP1 (RF) trial routes, but we would expect the number of aircraft flying RNP1 (RF) procedures to increase significantly over time. At present Ryanair are not RNP1 (RF) approved by their state regulator, the Irish Aviation Authority, but are currently seeking approval to fly the RNP1 (RF) SIDs. In time we would expect the vast majority of departing aircraft to fly the new procedures.

Is this just happening at Stansted or at all airports?
At present we are not aware of any other RNP1 (RF) departure procedures being trialled in the UK. In the future we would expect the conversion to RNP1 (RF) SIDs to be more common, especially in busy and constrained airspace.

Are these procedures for the benefit of the Airport and its Airlines by trying to save fuel?
No, the RNP1 (RF) SIDs have been designed to replicate the old conventional SIDs as closely as possible. Fuel burn can be saved by reducing track miles, but these SIDs do not reduce the distance flown by shortcutting corners within the noise preferential routes.

Has the Airport Consultative Committee been made aware of the trial?
Yes, we have kept the Airport Consultative Committee fully up to date as the trial has progressed from its design, through to the start of the trial and the results of the on-going monitoring. This has mainly been driven through their sub group the Environmental Issues Group who report at each of the main Consultative Committee Meetings.

When will the RNP1 (RF) SIDs become permanent if the outcome of this consultation is favourable?
The trial is due to end in May 2016, so we would anticipate adopting the RNP1 (RF) SIDs around this time.

How many departures per day have been flying the RNP1 (RF) SIDs?
Currently there has been an average of approximately 6 departures per day flying the RNP1 (RF) SIDs, some days with none at all and the most we have seen is 14 departures in one day.

PERFORMANCE BASED NAVIGATION

New innovative technology to reduce the impact of aircraft noise on communities around Stansted Airport

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FOREWORD

London Stansted Airport is the fourth busiest airport in the UK carrying over 21 million passengers a year. As well as a key enabler of growth and jobs in the local community, we also help to connect business and leisure passengers to over 170 destinations across 32 countries.

In addition to being an economic catalyst for the East of England, we strive to be a responsible neighbour and that means operating in a sustainable way, both by sharing the benefits of living near an airport and limiting any environmental impacts that may be felt as a result of our operation.

We continue to look for ways in which we can manage and reduce the number of local people affected by noise as a result of our operations and we are delighted that we have been able to work in partnership with the community, airlines and industry bodies to introduce new and exciting innovations in aviation technology.

Together with the Stansted Airport Consultative Committee's Environmental Issues Group, over the last two years we have conducted an airspace trial at Stansted that I feel demonstrates significant and positive improvements for the local area. The trial data shows a significant reduction in the number of local people directly overflown. On the two routes trialled, participating aircraft directly overflew 85% fewer people compared to traditional departure procedures.

We welcome feedback from members of the local community about adopting the trial technology permanently at the airport.

Andrew Harrison
Managing Director
Stansted Airport

I have been involved with Stansted Airport for nearly 15 years, initially with my village protest committee but quickly progressing to the 'inside' and working with the airport as part of the Noise and Track Keeping Working Group.

This Group comprises industry specialists and community representatives (who over time have become pretty expert themselves) and has as one of its many tasks to seek to maximise adherence of departing aircraft to the centre line of legally prescribed Noise Preferential Routes (NPRs). On this, thanks to the efforts of the airport staff, we demonstrated considerable success. However, it became increasingly clear that new procedures would be necessary to gain further improvement.

I also chair the Environmental Issues Group (EIG), a sub committee of the Stansted Airport Consultative Committee (STACC). This Group works in tandem with airport staff on all matters environmental – from the usage of utilities and services to the improvement of the noise environment around the airport. I therefore grasped the opportunity to progress the environmental benefits that improved departure route adherence offered.

The EIG has worked jointly with airport staff, the Civil Aviation Authority and NATS, who all in turn have worked with the airlines, to develop two trial instrument departures designed to modern navigation standards, known as RNP1 Departures. These mirror as close as possible the statutory NPRs and have been trialled for two years. They have proved demonstrably effective in improving the accuracy of departing 'tracks' for those aircraft using the trial specification. It has taken at least seven years to bring this to fruition, overcoming the necessary obstacles of simulation testing, safety procedures and regulatory approvals along the way, but our perseverance has now been rewarded.

The EIG together with the airport team now wish to make these two departure 'tracks' permanent, hence this consultation. We all feel the noise and environmental benefits are considerable and urge our local communities to look at the achievements and facts provided here and make their responses accordingly.

Keith Artus
Chairman
Environmental Issues Group of the
Stansted Airport Consultative Committee

OVERVIEW

Aircraft noise can sometimes be seen as intrusive and disruptive, particularly for those people that live closest to the airport and its flight paths. London Stansted Airport ('Stansted') has a long-term aim and commitment to manage, and reduce where possible, the number of people affected by noise as a result of aircraft operations.

Through communication and engagement with local community groups, an opportunity was identified in late 2011 to help reduce the number of people affected by aircraft noise. Stansted agreed to investigate this in further detail.

Our investigation resulted in a trial of modern navigation techniques for departing aircraft from May 2013 – a new innovation in the UK called RNP1 (RF) – which would better enable them to fly two of the existing flight paths more accurately. Keeping to these existing flight paths more accurately means fewer people would be affected by overflying aircraft in the local area.

A partnership approach was taken, engaging a number of bodies in the trial. Those involved from the initial concept of the trial included the Civil Aviation Authority (CAA), Stansted Airport, the EIG (a sub-group of the Stansted Airport Consultative Committee), NATS and easyJet. This allowed for a transparent process whilst testing the latest available navigational technology with a number of industry experts from air traffic control to airlines themselves. We thank all partners for their guidance and input into the trial.

The trial has been a success and Stansted has submitted the results of this trial to the CAA for review. This consultation begins the formal regulatory process to permanently adopt the procedures used in this trial. The full trial analysis report along with other consultation material is available to view at **www.stanstedairport.com/consultation**

"By using new technology to fly more accurately, fewer people would be overflown."

STANDARD INSTRUMENT DEPARTURES AND NOISE PREFERENTIAL ROUTES

Stansted is a noise designated airport and as such many of the noise controls are set by UK Government, including the establishment of Noise Preferential Routes (NPRs) for departing aircraft. This has been the case since the early 1990's following public consultation.

A Noise Preferential Route is an area surrounding the conventional departure route which is +/– 1.5km. Aircraft are required to remain within this area up to a minimum altitude, usually 4,000ft.

Stansted has six NPRs that encompass the low level initial section of the Standard Instrument Departure Routes (SIDs) before they diverge. A map of the six existing NPRs at Stansted is shown below. These SIDs are designed around conventional ground based navigational aids, which are now becoming obsolete.

London Stansted Noise Preferential Routes (NPRs)

A Standard Instrument Departure 'SID' is the intended route for an aircraft to fly immediately after take-off.

Departing aircraft are deemed compliant when they remain within a NPR corridor up to 3km wide (narrower closer to the runway and 1.5km either side of the SID) until they have achieved a minimum height, usually 4,000ft, when they can change heading onto a more direct heading to destination by Air Traffic Control (ATC).

Historically, there has been a wide spread of departure tracks within these 3km NPRs due to a range of factors influencing the position of an aircraft within the NPR including:

- airframe type
- departure weight
- wind speed and direction
- temperature
- the aircrafts Flight Management System(FMS) capability
- its navigational database encoding
- Noise Abatement Departure Procedures (NADP)

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THE TRIAL

Following discussions with local community representatives, two of the existing SIDs (runway 22 Clacton and runway 04 Detling) were selected to design and trial with modern navigational procedures.

The rationale behind this decision is detailed below:

- Replicating a SID on each end of the runway would allow data gathering irrespective of which runway direction was in use due to wind direction;
- Replicating the 22 Clacton SID would help alleviate community concerns by potentially reducing the over-flight of the villages of Hatfield Heath and Hatfield Broad Oak
- Replicating the 04 Detling SID would improve departure track-keeping compliance, as this has traditionally been the hardest route to fly and the least compliant SID at Stansted due to the tight wrap around turn after departure; and
- Replicating the 04 Detling SID would potentially reduce the over-flight of Great Dunmow.

The recommendation from the CAA was to conduct a departure track keeping trial with procedures designed to Required Navigational Performance standard (RNP1) using Radius to Fix (RF) Path Terminators for the turns within the NPR. As previously mentioned, this technology is a new innovation to the UK.

The objective of the RNP1 (RF) SID design was to replicate the existing standard SID as closely as possible to better enable all departing aircraft to keep as close to the centre of the existing NPR as possible.

The trial has been limited with an average of 5 – 6 departures per day (10%) flying the RNP1 (RF) procedures as opposed to all aircraft flying the same conventional route. Only operators with state regulatory approval for RNP1 (RF) operations can participate in the trial.

Those that have been able to participate so far are:

- AtlasAir
- easyJet
- Fayair
- FEDEX
- German Wings
- Global Supply Systems
- Pegasus
- UPS

All the above airlines have all flown the RNP1 (RF) SIDs with a variety of aircraft types and sizes. We expect the numbers of aircraft able to operate on RNP1 (RF) SIDs to increase over the coming years as further regulatory approval for operators evolves.

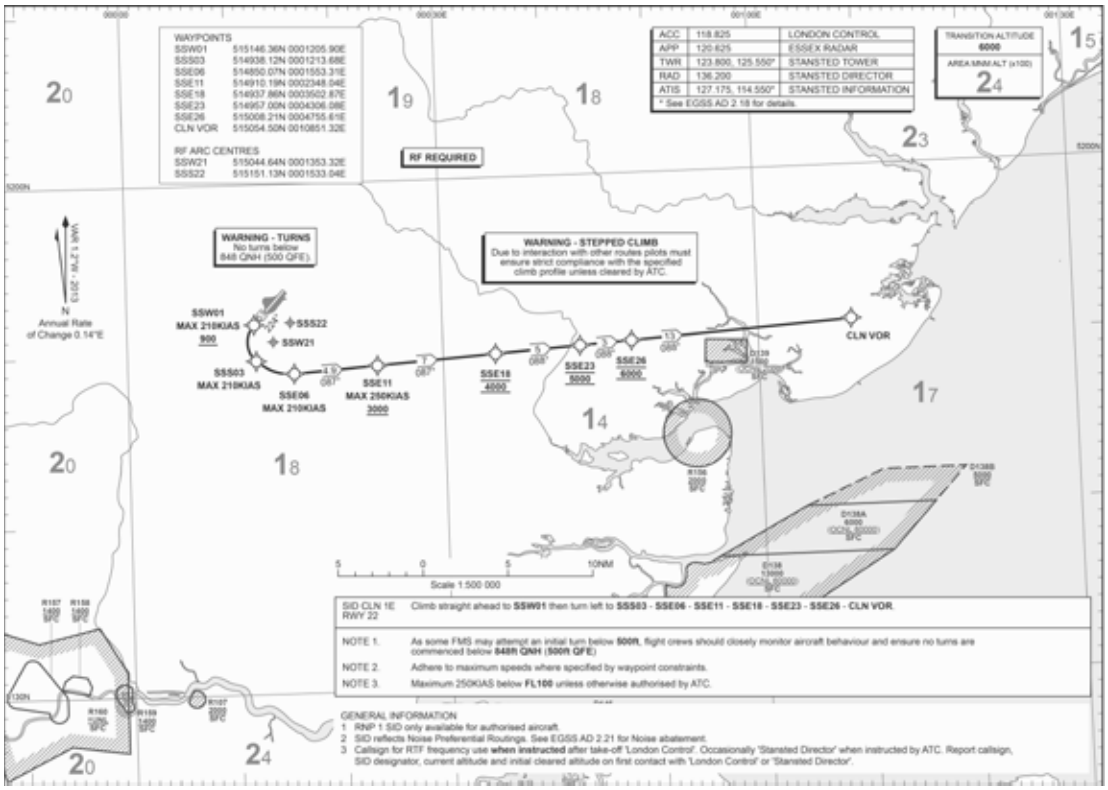
WHAT IS RNP1 (RF)?

Required navigation performance (RNP) is a type of performance-based navigation (PBN) that allows an aircraft to accurately fly a specific path between two defined points in space.

RNP also refers to the level of performance required for a specific procedure or a specific block of airspace.

An RNP of 1 means that a navigation system must be able to calculate its position to within 1 nautical mile. RNP SIDs can also incorporate Radius to Fix (RF) turns, that better enable accurate track keeping, especially through tight radius turns. This then provides the same ability to conform to the track-keeping accuracy during the turn as in straight line segments. Bank angle limits for different aircraft types and winds aloft are also taken into account in RNP1 (RF) SID procedure design.

A typical example of the runway 22 Clacton RNP1 (RF) SID design is shown below.



TRIAL RESULTS

22 Clacton
Standard Departure Procedures

Figure 1 shows a typical spread of departures within the 3km wide NPR. The point where most aircraft are at approximately 4,000ft and can be vectored is also highlighted.

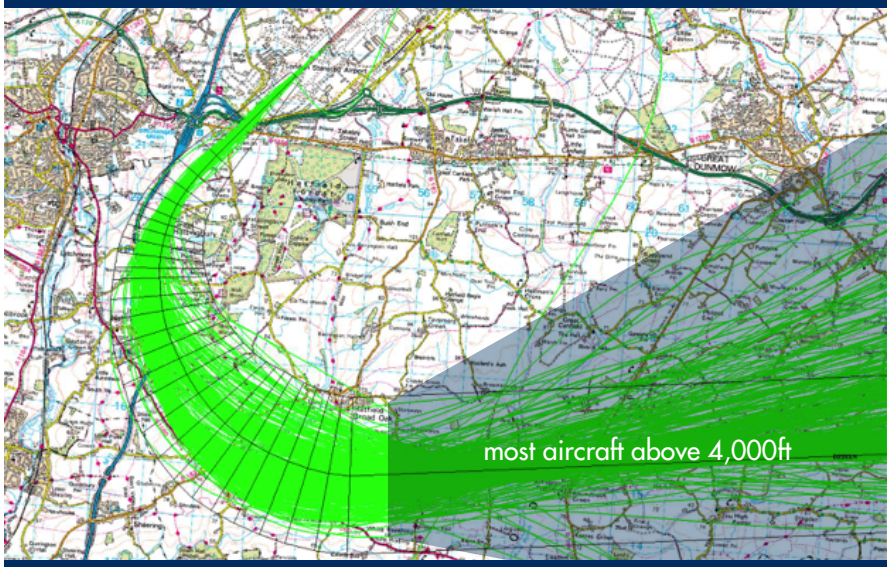


Figure 1: Typical spread of departure tracks across runway 22 Clacton NPR

22 Clacton trial results

Figure 2 shows a small sample of aircraft flying the RNP1 (RF) trial procedures. The RNP1 (RF) SID is shown as a red line and the design routes aircraft between Hatfield Heath and Hatfield Broad Oak whilst also avoiding the overflight of Little Hallingbury earlier in the departure route. This designed RNP1 (RF) trial SID replicates the conventional SID.

The results of the trial indicate that there is a strong adherence to the designed procedures, irrespective of aircraft type, weight, FMS and wind speed/ direction which traditionally have a strong influence of how an aircraft fly's a conventional SID. Typically at around 4,000ft in height, over 99% of aircraft are within a swathe of less than 500m, instead of the typical 3km wide NPR.

22 Clacton Up to 4,000ft	Number of people directly overflown
Aircraft flying traditional departure procedures	3,800
Aircraft flying RNP1 (RF) procedures	500

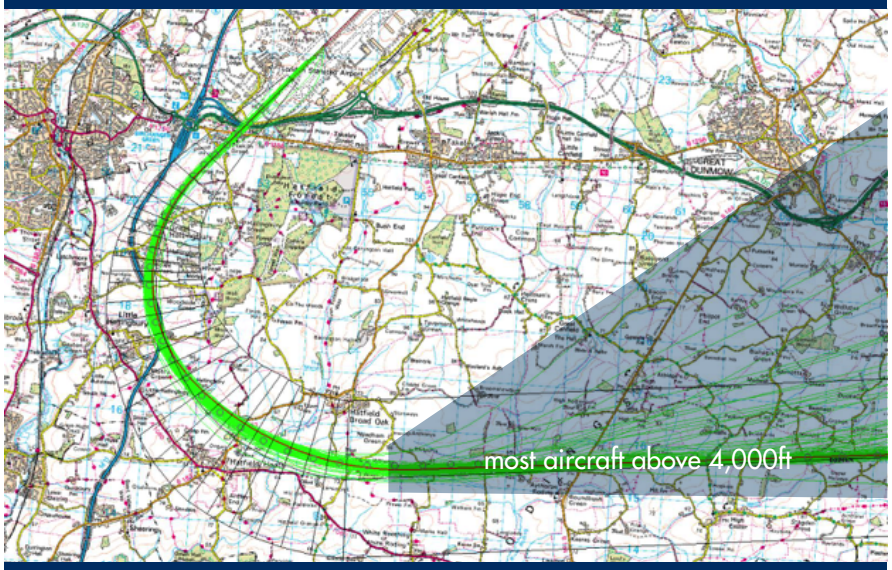


Figure 2: Typical spread of departure tracks across runway 22 Clacton NPR during the trial flying RNP1 (RF) procedures

Data supplied by ERCD [illegible] Ltd population data

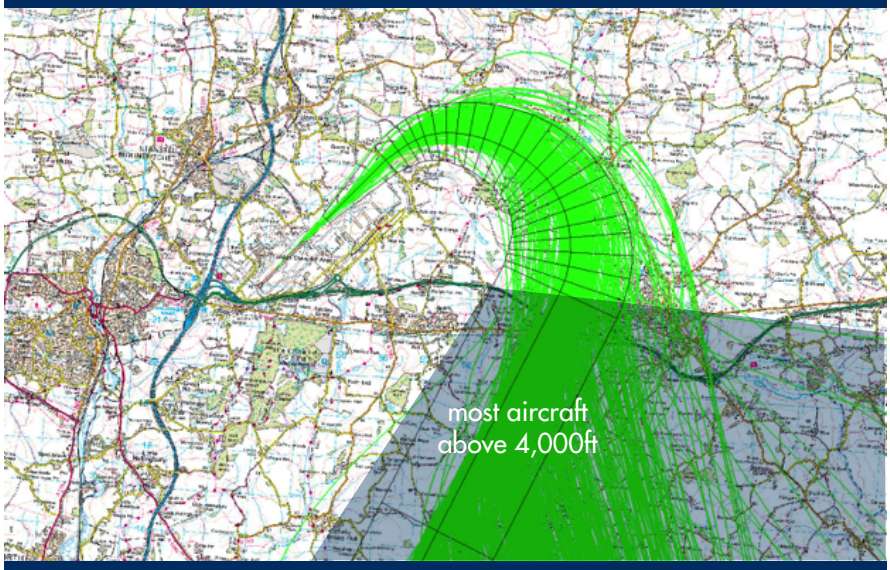


Figure 3: Typical spread of departure tracks across runway 04 Detling NPR

04 Detling
Standard Departure Procedures

The second SID that was trialled with RNP1 (RF) procedures was the runway 04 Detling. This was chosen as this is the hardest to fly and traditionally the least compliant in terms of track keeping within the NPR due to the tight right turn immediately after take-off.

Figure 3 shows a typical spread of tracks across the conventional 04 Detling NPR and the typical height where aircraft are vectored when they are above 4,000ft.

The 04 Detling RNP1 (RF) SID also shows a very tight concentration of tracks as shown in Figure 4. The designed RNP1 (RF) SID shown as the red line avoids the overflight of Little Easton and Great Easton, with the greatly reduced overflight of Great Dunmow. Typically, over 99% aircraft flying the RNP1 (RF) SID were within a swathe of less than 420m. This RNP1 (RF) SID closely replicates the conventional SID.

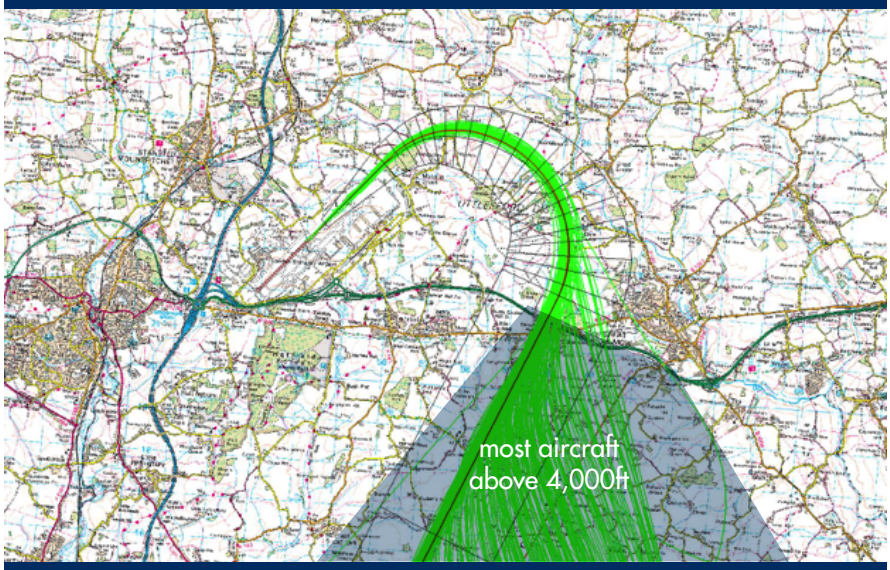


Figure 4: Typical spread of departure tracks across runway 04 Detling NPR during the trial RNP1 (RF) procedures

04 Detling trial results

The 04 Detling results have shown a high degree of accuracy in terms of lateral track keeping when analysed against the designed RNP1 (RF) SID. It is clear that the benefits of this Performance Based Navigation turns through the RNP1 (RF) design prove to be extremely accurate and flyable, with in excess of 98%+ of operations contained within a swathe of just 400 metres. What is most noticeable about the design is how track keeping accuracy has been achieved with a wide range or aircraft types. This improved accuracy of track keeping has been demonstrated irrespective of aircraft type and size with aircraft from a small Gulfstream GV (SP) G550 to a very large Boeing 747-8F operating on the RNP1 (RF).

04 Detling Up to 4,000ft	Number of people directly overflown
Aircraft flying traditional departure procedures	1,200
Aircraft flying RNP1 (RF) procedures	200

OS maps supplied by ukmapcentre.com

Data supplied by EPS Systems 2015 CACI Ltd population data

HOW CAN I HAVE MY SAY?

We are seeking the views of our local communities about the permanent adoption of this technology.

As part of your response, please indicate:

- Your name and postcode
- If you are commenting on behalf of an organisation
- Whether or not you support adopting the technology used in the trial
- Please also indicate if you do not wish your name, or any other personal details to be included in the consultation feedback report.

To respond to the consultation, you can send your thoughts to us via email at
consultation@stanstedairport.com

or write to us at:
Airspace Consultation Team
Airfield Operations
3rd Floor
Enterprise House
Stansted Airport
CM24 1QW

All consultation responses will be submitted to the CAA.

We are also holding a series of local community outreach events covering all elements of Stansted Airport's operation including local employment, public transport provision and this consultation.

If you would like to come along and speak to a member of the airport team, please drop in on the following dates:

- 22 September 2015 – Foakes Hall, Great Dunmow – 3pm to 7pm
- 24 September 2015 – Rhodes Centre, Bishops Stortford – 3pm to 7pm
- 07 October 2015 – Hatfield Heath Institute – 3pm to 7pm

TIMELINE

The consultation begins on 1 September 2015 and will close on 27 November 2015 and we invite you to share your views. Details of how to do this can be found below.

At the close of the consultation period, Stansted Airport will collate and review all feedback received, submit a consultation feedback report to the CAA and then submit an airspace change proposal to the CAA with the aim of adopting the trial technology permanently.

GLOSSARY

ATC	Air Traffic Control – air navigation service provider for controlled airspace
CAA	Civil Aviation Authority – UK regulator for civil aviation
EIG	Environmental Issues Group – a sub committee of STACC
FMS	Flight Management System – a specialised computer system that automates in-flight tasks including aircraft navigation
NADP	Noise Abatement Departure Procedure – a procedure adopted to minimise noise immediately after take-off
NPR	Noise Preferential Route – an area +/- 1.5km either side of a SID, where departing aircraft concentrate
PBN	Performance Based Navigation – specifies performance in terms of accuracy within airspace
RF	Radius to Fix – a curved path designed within a RNP1 SID
RNP1	Require Navigational Performance of 1 Nautical Mile
SID	Standard Instrument Departure – conventional departure route based on ground navigational aids
STACC	Stansted Airport Consultative Committee, a regular meeting of locally elected members, industry and community groups
04 DET	Runway 04 Detling SID
22 CLN	Runway 22 Clacton SID