Summary of Feedback Responses and Q&A

Stage 2 Develop and Assess

MAG London Stansted Airport

Appendi 11 outlines the feedback and Question and Answer (Q&A) from phase one and two stakeholder engagements.

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	Stakeholder feedback said….	We did…..
Respite	Creating routes that could provide options for respite for areas that are frequently overflown is important as a means of minimising local impacts.	Additional design envelopes have been created and, some envelopes have been extended to create further opportunities to create respite. We will also explain how respite might be achieved. This will become clearer at Step 2B, when our options are refined and assessed further and in Stage 3, when we establish how the refined routes could work together. Design principle link N2.
Community noise impacts	Managing potential noise impacts on overflown communities is a key concern. Further details of how noise impacts could be addressed through the route design is required.	Route options that take account of areas that are more highly populated have been included by applying design principles N1, N2, and C. Options to provide noise relief have also been included and as we refine the design options, we will also be considering areas of future housing growth. Design principles link Noise N1, N2 and C.
Environment	Options should demonstrate environmental benefit. Further detail on how this will be achieved should be provided.	As part of our DPE, in line with our 'Balance' principle, each route option will be assessed to understand the fuel burnt and emissions generated. This will be compared to the baseline scenarios to provide a clear picture of the comparative environmental impact of each option. Design principles link B and T.
Housing plans	There are a large number of new housing developments in the local area, the location of these should be taken into account as options are developed.	All available details of committed housing allocations have been included on our route options maps and, options that take account of these have been provided. Design principle N3.
Sensitive areas	Green spaces, cultural and historic buildings are important. The location of AONBs (Area of Outstanding Natural Beauty), SSSIs (Site of Special Scientific Interest) and other sensitive sites and buildings should be considered.	The location of sensitive areas have been included in our route options maps to provide clarity for stakeholders. Options have been provided that take account of these areas and this will be formally assessed as part of Design Principle N3.
Efficiency	The opportunity to create a more efficient overall route structure is welcomed. More detail is required on how Stansted's options will align with other airports airspace change programmes and the NATS network changes.	The process requires alignment with the network and our Design Principle P provides assurance that each route option must meet this requirement. Further detail will arise as other sponsors airspace change programmes progress. Design principle link P, E, T, A
Technology	Stakeholders noted the limitations of the current structure and were mostly supportive of ensuring that our arrivals designs facilitate Continuous Descent Approaches (CDA) to both runway ends. However some asked if	All of the arrivals route options will facilitate CDAs to both ends of the runway. We will explain later in our engagement how route options that do not facilitate this have been categorised as part of the initial options development process. In addition we have

London Stansted Airport Future Airspace

Stage 2, Develop and Assess
Q&A – phase one engagement

June 2021

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Departure envelopes

Q. Is the climb rate for departing aircraft a constant gradient or does it take into account the variable gradient that aircraft fly?

We propose to design to a minimum design gradient of 6% but with most routes designed to 8%. However, there are discussions ongoing with NATS to understand how much this can vary and the impact on the network if an aircraft climbs faster than the designed gradient and reaches 7000ft earlier. This will be incorporated into later designs that we produce through the process for consultation.

Q. What height are you considering as the minimum turn height during departures?

Our design principles require us to align with UK and international rules including International Civil Aviation Organisation's ("ICAO") PANS OPS 8168, including the point at which aircraft can make their first turn. The UK rules adapted from ICAO are for no turns below 500ft AGL (above ground level), 848ft AMSL (above mean sea level).

Q. Will operators be given guidance on engine out departure procedures. It's not something we generally get given but I'm curious about it?

In the same way as missed approach procedures, this is not something we are able to consider yet because we are too early in our designs. These will be incorporated into our final designs and engine out procedures will form part of the safety case for the new airspace and Standard Instrument Departure ("SID").

Q. Could you please explain at some point the relevance of fuel burn to the considerations i.e. height versus consumption?

In general terms, aircraft engines operate more efficiently at higher altitudes. Therefore, the quicker aircraft can get to a cruise altitude, the lower the fuel burn is likely to be across the total flight and hence lower total CO_2 emissions. There is a limit on the optimal climb gradient and we are working with airlines to understand the impact to their operations and fuel burn of t he different design options. At this stage, our fleet survey has given us important base information to inform our designs.

Q. Keeping 1.5 km from the centre of the route means a very high concentration of noise. Why can this not be spread be wider?

All options including concentration and / or dispersal can be considered. We monitor current operations within the NPRs using this 1.5km criterion but our design envelopes are using much wider criteria to provide an opportunity for us to provide a spread of routes and consider additional route options.

Q. Are you not being a bit limiting by using GVS *(gas venting stations)* and DA's *(danger areas)* as no go areas? GVS are fairly low-level restrictions (and probably below the climb profiles) and DA's are activated and deactivated by NOTAM.

In creating these constraints we've looked primarily at our design principle on safety. For the gas venting stations the constraint coincides with the dimensions of the area which in both cases is only ¼ mile radius, resulting in only a minimal impact on our design envelopes. For the larger danger area, the unpredictable nature of the operating hours would mean our departure routes may need to be changed at short notice. This would not align with our design principle on efficiency which seeks a systemised operation (i.e. without this type of ad hoc restriction). In addition, because of the types of activity in the danger area we feel it would not align with our design principle on safety if we were to route aircraft through that area.

Q. Any idea at present what the percentage split of traffic may be on the use of the various envelopes?

No not as yet. These are just conceptual envelopes as to where routes could be. As the designs develop, and the options start to narrow down we will be in a better position to describe which flights could use which routes.

Q. What are the climb gradients typically of the older cargo aircraft and the heavies?

From the fleet survey, all the cargo operators that responded said they could achieve 6% and in some cases 8% climb gradient. More modern aircraft can all climb more quickly than 6% hence the reason for the proposed difference in gradient between some SIDs and others. We will provide alternatives for lower performing aircraft in line with our design principle on Alternatives.

Q. Repeated departures over the same location are one of the most annoying noise issues. If there are several departure routes available, can the procedure include that they are used in sequence to spread the noise disturbance?

Yes; the use of multiple routes to provide noise relief or predictable noise respite sits within our design principles under N2. This could be via multiple routes within the same envelope (subject to the rules that apply to the design of PBN routes) or alternatively through other types of respite such as different time periods.

Q. With PBN and its greater accuracy do you have the ability to use several narrow routes within the wider corridor?

Yes; that is a possibility. This will be however, subject to ensuring we are aligned with the rules that apply to the design and separation of PBN routes. If that is something that is supported we will look at options for doing that in the work on route design.

Q. Can there be multiple routes within one envelope?

That is a possibility yes, subject to ensuring we are aligned with the rules that apply to the design of PBN routes. If that is something that is supported, we will look at options for doing that in the work on route design. If there is more than one route within an envelope, how this would then be operated would form part of the consultation within the later stages of this process.

Q. A 6% climb rate let alone 8% aircraft will need considerable power input for some length of time. The North West area in more normal times has high levels of noise and traffic already with more traffic this will be a substantial increase in air traffic over an area with a high level of population in a multitude of towns and villages - can these routes be looked at again?

From our fleet survey and conversations with airlines, we understand that Stansted benefits from a relatively modern aircraft fleet and that this type of climb gradient is readily achievable without excessive power. However, a noise analysis of each route (which will compare the current scenario with the proposed change) will be provided at Stage 3, and this will allow you view the impact of all route options.

Arrival envelopes

Q. Can I confirm your arrivals CONOPS will include PBN 'transitions' to the final approach? ie no radar vectoring.

Yes, our current assumption is that from 7,000ft aircraft will be operating on PBN routes rather than being vectored by air traffic control. This aligns with the design principles on policy and technology, but the final concepts and designs will be dependent on the results of these discussions and consultation in stage 3.

Q. For CDAs, are you expecting pilots to manually alter their rate of descent to comply with the CDA or, will it be purely an FMS driven procedure without intervention?

Consistent with our design principle 'Efficiency' we would expect the latter to apply on CDAs, but we will be taking guidance from our airlines stakeholders as to what works best for them and also working with NATS. Due to the requirement for variable arrival spacing (for both wake turbulence and runway efficiency reasons) some limited Air Traffic Control ("ATC") vectoring may however still be necessary.

Q. Putting all arrival traffic over the airfield seems to increase track-miles. Is it really necessary?

We haven't yet undertaken an assessment of the track miles that result from this arrivals option, so it is not possible to provide a direct answer at this stage. However, we do not anticipate that these options will result in excessive track miles when compared to the position of the current holds (which are to the north west and north east of the airfield), particularly when operating on Runway 04. As part of the next stage, we will start to define routes, rather than the broad envelopes we have shared so far, and these will allow us to perform some basic analysis on track miles, which can then be broadly equated to fuel burn and CO_2.

Q. How is the missed approach routing considered in the new proposals?

Because these are only design envelopes to illustrate where aircraft could fly there are no supporting routes that sit behind these. As a consequence, the missed approach procedures (MAPs) have not yet been developed. At present the standard missed approaches follow one of the Noise Preferential Routings, but the need for

MAPs will always be necessary and they will be incorporated in the designs as we move through the airspace change process.

Q. Why does the stack have to be on your 7,000ft line? Surely it could be at any height and out at sea and aircraft brought from there using CDA from a higher point.

Although this is possible, this is where the discussions with NATS come in. In designing the hold, NATS will need to take account of the complex patterns of traffic approaching all of the London airports as well as ourselves.

Q. Considering current aircraft types, is the 6% cast in stone?

No; this isn't cast in stone. But, 6% is the climb gradient that airlines advised they could achieve within our fleet survey. It is also likely to be a minimum requirement from the NATS network.

However, as was covered in the presentation, we are designing most routes to 8% to enable aircraft to depart on higher, more efficient profiles, with some routes designed to 6% which is in line with our design principle 'Alternatives'.

Q. Is there a reason why LOREL hold isn't mirrored so aircraft leave the stack at its south westerly point (new waypoint) rather than south easterly point (LOREL)?

We hope to design out holding stacks and replace with a more modern delay arrival system, but all options are on the table, so if changing the exit points will facilitate CDA to runway 04, it could be an option within the realms of minimal change. Consistent with our design principles, all options should seek to minimise the impacts of noise and balance noise and emissions.

Q. How practical and likely are these two options to be adopted (arrivals, centre west)?

From a Stansted perspective, we consider all of these options are both practical and viable. However, the practicality of the options will form part of the discussions we are having with NATS with respect to the integration of Stansted traffic with the wider network.

Q. I didn't hear if you intended to change the standard 3% glide slope for arrivals?

We are currently designing to a 3 degree glideslope, which is the same as is used today at Stansted and most UK airports.

Q. The new flightpaths appear to all go over great Samford. There will be no respite, unless they use the other runway. Planes will make their final approach from further away and take a consistent straight line over more villages. Is this in line with the noise principles?

At this stage these are not flightpaths but just design envelopes within which aircraft are able to fly. The next stage in the process is to start designing route options (lines on a map) within these envelopes. These will look at options where it may be possible to create either relief or respite, although our ability to do so will always be constrained by factors such as the rules relating to route design, including where turns can be placed so as not to impact aircraft safety.

Q. CDA is obviously a valuable tool but I think that aircraft will be perceived to be a noise nuisance if they can be seen regardless of if they are above 4000 ft. On page 4 you make the following statement: 'So, having covered departures we can now move onto arrivals. As previously mentioned, there are 2 important things to consider which is, the need to provide continuous descent to both runway ends, and the need to minimise the interactions with other airports.' – Surely N1 ranks with these considerations?

All of our agreed design principles are important and all of them will guide the development of our route options. Design principle N1, seeks to minimise the number of people overflown, to reduce the impact of aircraft noise. CDA is a valuable tool to reduce both noise and emissions from arriving aircraft. Adopting CDA would not be inconsistent with design principle N1 and as such there is no practical reason to rank the two considerations.

Q. Could both the Runway 04 arrivals routes operate together spreading the impact?

As these are only design envelopes it is not possible to confirm at this stage whether this would be possible. However, our design principle N2 covers the use of multiple routes to provide noise relief or noise respite. Therefore, the concept of using multiple routes within the same envelope to spread the impact (ie noise

relief) is something that can be considered. An alternative is that we investigate the use of only one route at a time but use them at different time periods, which creates predictable noise respite. These concepts will be discussed more fully as we reach the next stage of the airspace change process.

Current operations

Q. What % of departures use each route?

Overall, from runway 22 approximately 35% use the Clacton route, 31% use the Buzad route (which encompasses the NUGBO and UTAVA SIDs) and 1% use the Detling route. From runway 04 approximately 17% use the Clacton route, 15% use the Buzad route and 1% use the Detling route. Our aim is by providing additional routes (as outlined by the design envelopes) we will create additional flexibility and in turn help to achieve the design principles on noise, efficiency and demand.

Q. Do the existing noise monitoring reports of Cole Jarman reveal the climb gradients of the aircraft in question?

No, they do not measure the climb gradients, they do show heights of aircraft at specific locations, which is included in their reports. These reports show that aircraft height varies, which can be due to the performance of different aircraft types, whether air traffic control has given further climb instructions or held an aircraft at a specific level, within the constraints of the current airspace.

Q. Do you have ILS/Final approach minimum join points either for noise abatement or safety?

Yes; they are set by the Government as part of our designation and are for noise purposes. To change them will need Government approval, but the CAA process requires us to consider a comprehensive range of viable options, which will not stop them being considered within an optimal design.

Q. The use of the airspace over the east of Doddinghurst by light aircraft practicing 'cutting the engine' which is always a bit concerning but also the constant use by acrobatic flyers who sometimes spend an hour or more doing their loops etc. I am unsure of what height they are at and I presume that they are in fact 'just' away from being overhead at my end of the village but always wonder about their interaction with commercial aircraft and also helicopters both civil and emergency types.

This traffic would be operating in what is known as Class G (or uncontrolled) airspace which is available for anyone to fly into. All Stansted traffic operates in its own controlled airspace which requires air traffic control permission to enter and we have the ability to influence the way traffic flies in this area. However, we don't have the ability to do anything about aircraft in Class G airspace. Within this process all of our routes will be designed to be separated from Class G airspace according to the CAA airspace regulations in line with our design principles on Safety.

Q. Doddinghurst near Blackmore has suffered increased take off noise since the original expansion of Stansted many years ago. The NPRs were changed and helped but none of the maps is sufficiently detailed to show how far past the NPR Doddinghurst is? and at what height they currently fly over us? The noise is already substantial on take offs and it would help to understand the current position first?

Doddinghurst is located 5.5 nautical miles beyond the end of the current runway 22 Detling departure route. Stansted aircraft departing on the current 22 Detling departure route would usually reach between 7,000 – 11,000 feet when close to this area.

Wider airspace modernisation programme

Q. If Stansted design is constrained by NATS upper air structure, is there benefit in influencing that as part of the Airspace Modernisation process? Similarly, noting the area constraint imposed by Luton departures, would there be benefit in harmonising Luton and Stansted procedures to maximise efficiency at both?

We have already started to work closely with both NATS and Luton via bilateral meetings to understand constraints and identify where conflicts might occur, with the aim of reflecting solutions in our design options. Working in partnership is a key part of the national programme of airspace modernisation.

Q. How can we find out about the possible stacking consultation please?

As discussed in the slides, the airspace above 7000ft, which will include the arrivals holds (or stacks) is the design responsibility of NATS. Their work is being conducted under separate ACPs. Information on all

airspace changes can be viewed on the CAA portal at https://airspacechange.caa.co.uk/ with the information relating to the airspace in the vicinity of Stansted expected to fall under ACP-2020-044 and ACP-2020-045. General information on airspace change can also be found at https://airspacechange.caa.co.uk/about-airspace-change

Q. Is there a date for the NATS consultation?

The NATS work is being conducted under separate airspace change proposals which have been paused due to COVID, but which are expected to re-commence shortly. Once active, information on the change, including proposed dates for engagement and consultation can be viewed on the CAA portal at https://airspacechange.caa.co.uk/ . Because the NATS change needs to accommodate change at all major London airports there are 2 projects that may result in a change of the airspace above 7,000ft in the vicinity of Stansted. The reference numbers for these on the CAA portal are ACP-2020-044 and ACP- 2020-045.

Q. It would be helpful to understand how any change in the holding area would affect these options and what steps have been taken to ensure that a final decision is coordinated between the two determinations.

In designing the hold, NATS will need to take account of the complex patterns of traffic approaching all of the London airports as well as ourselves. However, we have already started to work with NATS via bilateral meetings to understand constraints and identify where opportunities and constraints might occur. We have also provided NATS with a list of requirements (based on our design principles) which they need to take account of in designing the upper holding areas. The arrivals options shown today reflect both the application of our design principles and those conversations. Because of the very broad nature of the initial arrivals envelope (at 7000ft) we are therefore confident that all are viable options from a design perspective. However, if a change is required by NATS we will evaluate this against our design principles in the same way as the suggestion of any other alternative option. Coordination and working in partnership is a key part of the national programme of airspace modernisation. This is also a requirement of the CAP1616 process, and whilst airports are driving their individual projects, the wider programme is being coordinated by the Airspace Change Organising Group ("ACOG"), a government funded agency. ACOG is making sure that airports are coordinating with each other and NATS via bilateral meetings. Demonstrating this engagement to the CAA is a requirement of the CAP1616 process that we are following.

Q. If the existing holding areas may no longer exist, or be changed to another area, will there be consultation with those who live in that area? I ask this because it is unclear whether Stansted have any control over the process if it is the responsibility of NATS.

We will continue to work with NATS and other airports as we develop our proposals, however, any changes made by NATS will be a separate airspace change proposal, for which they will agree with the CAA an appropriate programme of stakeholder engagement and consultation. Details of the NATS airspace change proposals can be viewed on the CAA portal at https://airspacechange.caa.co.uk/ under the references ACP-2020-044 and ACP-2020-045. In some circumstances, if our proposals were to overlap with those of another airport or NATS, it may be appropriate for us to undertake a degree of joint consultation. At this relatively early stage we have yet to determine if this would be necessary.

Q. Are operators expected to do work to ensure they comply with your requirements -or is it standard ops for them?

The Stansted airspace project is one part of a wider project of airspace change across the London area and the whole UK. Changes that affect airline operating procedures such as climb gradient will (as closely as possible) be aligned with other airports. As part of the process, we'll be working with the airlines that operate in and out of Stansted to ensure the changes are as seamless as possible and once implemented, these procedures will become standard operations.

Q. Has this modernisation process commenced in other countries? Are there any that face similar challenges in terms of complexity? Have you considered/reviewed the modernisation principles/learnings applied to airspace in other countries?

Some limited airspace modernisation has been achieved in other countries but the controlled London airspace remains the most complex piece of airspace in Europe. To make our changes, we're required to follow the CAP1616 process and the Airspace Modernisation Strategy created by the UK CAA and the Department for Transport. This applies to all airports in the UK. Our technical team has comprehensive experience of airspace solutions, including experience outside of the UK, and if ideas can be brought into the project (within the rules that apply to UK airspace), these will be considered.

Q. How does this fit into the national project and the benefits that could be derived from cross project sharing?

Our airspace project is part of the Future Airspace Strategy Implementation programme which covers over 20 major airports in the UK including Heathrow, Southend, London City, Northolt and Luton. Whilst airports are driving their individual projects, the wider programme is being coordinated by an organisation entitled Airspace Change Organising Group ("ACOG"). ACOG is making sure that airports are fully aligned so that we can all capitalise from the benefits. In addition, the process requires us to coordinate with other airports and NATS via bilateral meetings. These help us understand each other's designs as they emerge and create designs that make the best use of the finite airspace in the London area. In the past month we have had several meetings with both ACOG and with the airports mentioned above to share these options with them.

Q. As there is already congestion, how will possible expansion of other nearby airports affect the design and has this been taken into account?

Yes, this work is ongoing, and we have already started to work with both NATS and other airports to understand constraints and identify any issues. We have asked that NATS ensure that their network arrangements at higher altitude do not constrain operations at Stansted or cause our air traffic to suffer delays as a result of traffic from other airports. This is in line with our design principles on Demand and Efficiency.

<u>Stakeholder engagement</u>

Q. Are there a number of sessions like this at this stage? There are new areas which may be affected but I'm not sure those councils are represented here, is there another mechanism for their involvement?

At this stage we are engaging with a range of representative stakeholders. Full public consultation follows at Stage 3 - which is likely to take place in 2022/2023. All councils within and around the envelope areas have been invited to one of these sessions. We will update all stakeholders who were invited but did not attend, prior to the second phase of engagement in September.

Q. Will it be appropriate that you circulate a list of attendees/bodies etc please?

Full details of all stakeholders engaged will be published on the CAA portal at the end of Stage 2 when we submit details of the work we have completed at this Stage to the CAA for approval.

Q. Are we going to receive the mapped design envelopes for us to review and consider the local constraints and any other matters that we would wish to comment on?

The slides including the questions posed have been provided with this document. Please provide any additional comments by 2nd July. To be meaningful, the information we have provided to you needs the context and explanation that we have provided. We would not want the material to be shared without the accompanying explanation and therefore we ask that it is not to be shared outside of your organisation or with any third party without prior consent. At this stage we are engaging with a range of representative stakeholders. Full public consultation follows at the next Stage 3 - which is likely to take place in 2022/2023.

Q. 25th June does not give much time to respond - can it be a little later?

In response to feedback, we have extended this to Friday 2nd July - however if you have further thoughts after this date we will happily accept them and take them on board. You will also be invited to attend a further engagement session in September and there will be a full public consultation on our detailed proposals, currently expected to take place in 2022/2023.

Q. You mentioned that you include the UK military in your consultations, do you also discuss this project with IWM at Duxford?

Yes; Duxford has been invited to engage and share its views on the work we have completed so far at Stage 2.

Q. Are we able to have copies of the flight paths you have under consideration?

The presentation that we talked through in the session is provided with this document. This shows the initial design envelopes that we presented to you. You will be invited to another session in September where we will present specific route options for discussion. These will be developed after we have completed this phase of engagement so that we can incorporate stakeholder feedback on the design envelopes into that next stage of work.

Design considerations

Q. Are adverse weather conditions or security concerns at Stansted considered and the need to divert aircraft to either Luton or Southend (local to Stansted) airports?

All procedures are designed to standard temperature and pressure criteria that all aircraft are capable of flying. To ensure the final options are flyable under a range of weather conditions, the new procedures will need to undergo simulation under a range of weather (temperature and wind) conditions, although this will not take place until much later in the process. With regards to diversions, these are a separate consideration from the design of these options. Diversion procedures will be put in place and these flights will be managed on a case by case basis, by air traffic control, as each situation is different and needs to be handled safely.

Q. How will you address the safety of airspace users not inbound to/outbound from Stansted?

Safety is critical when designing procedures. We have a safety assurance process that is already running within the project. As part of our final submission, the CAA require us to produce a full safety case for the airspace change which will detail the safety requirements we need to meet, how we've met them, and the mitigations and assurances we will put in place once operational. This safety case covers the aircraft in and out of Stansted and also provides protection to aircraft transiting Stansted airspace, which are not taking off or landing with us. This safety case needs to be approved by the CAA before the new routes "go live".

Q. Has any consideration been given to the HAP for Helicopter departures?

Our design principles mean we will ensure access for helicopter operations. Helicopters generally operate under visual flight rules ("VFR") and feedback during stage 1 of the airspace change process (Design Principles) was to maintain VFR operations and with no impact for helimed or emergency services. The design principle 'Efficiency' addresses this point specifically and the final designs will ensure access for both helimed helicopters and other VFR operations. However, this project will not be designing any specific routes for these operations.

Q. Can you send us a link to the CONOPs document?

The CONOPS is a technical document intended for an expert reader. It provides the airspace designers with a brief to work from. It is driven primarily by a description of the current operations (and the limitations with the current route network), the design principles, and the information from the fleet survey. As such, we have shared the majority of the information contained within the CONOPS with you as part of these sessions. In sharing the information, we have been able to make it more accessible. Some aspects of the CONOPS, particularly aspects of the aircraft fleet survey, are provided to us as commercial in confidence, so cannot be disclosed, however, we could provide a redacted copy of the CONOPS, with this information removed. If you think this would be helpful, please get in touch.

Q. Might the increase of wind farms and Sizewell C have implications on any of the proposed envelopes? Given the time scales will be longer than your plans to submit to CAA.

We are not anticipating Sizewell C will have an impact on the design envelopes. With regard to growth in energy development, particularly wind farms, there are mandatory safety standards that will need to be built in any future design in respect of air routes and developments such as these to ensure the safe operation of aircraft within their proximity. Environmental aspects also need to be considered, for example we would not wish the hold location to result in additional fuel burn and CO_2 emissions that disadvantage Stansted arrival operations. In aligning to the design principles, we have taken the view that holds closer to the airport are more closely aligned to our design principles 'Balance' and 'Efficiency'. However, please be aware that at Stansted, we are required to design from 7,000ft and below and so we won't be designing the holds, that is the responsibility of NATS and we will use your input to work with them as we progress.

Q. Is there any understanding (and if so, what) of the impact of the new emission control?

The current process requires us to give priority to noise below 7000ft. However, we understand the importance of fuel burn and emissions which is why these are included within the Balance design principle and our options are seeking to minimise these. Airport emissions are a complex subject and are a product not only of airspace design, but also airline fleets and the ground transportation using the airport. However, as we are only addressing airspace and the fact that the new controls have only recently been announced, it's not yet clear as to whether these are expected to be applied to airspace design.

Q. What is the understanding of the future demand for travel from Stansted airport?

The UK travel industry has been badly impacted by the global pandemic and we continue to take the necessary measures to minimise our costs. However, we believe that the situation will stabilise and we expect to fully recover over the next few years. In the long term, we believe that Stansted will continue to grow and that we will reach a capacity of 43 million passengers per annum, consistent with the recent planning decision.

Q. What system are you operating under, is it demand or plan led?

Our design principle 'Demand' states that our 'airspace design must provide for the utilisation of aircraft movements permitted by planning permissions and within statutory limits in force at the airport'. So, the airport will continue to react to market demand from our customers but will plan for an airspace system that is able to accommodate all of the aircraft movements that are permitted.

Q. Having concerns about the MPH (Movements per Hour) of 55 and given the need to generate more flights from local airports, how long this figure will remain at 55?

We believe that a runway rate of 55 movements per hour, is a realistic maximum that can be accommodated at Stansted given the constraints imposed by our airfield layout and single runway operation. Therefore, our chosen airspace solution should provide for this level of throughput.

Q. Are adverse weather conditions or security concerns at Stansted considered and the need to divert aircraft to either Luton or Southend (local to Stansted) airports?

All procedures are designed to standard temperature and pressure criteria that all aircraft are capable of flying. To ensure the final options are flyable under a range of weather conditions, the new procedures will need to undergo simulation under a range of weather (temperature and wind) conditions, although this will not take place until much later in the process. With regards to diversions, these are a separate consideration from the design of these options. Diversion procedures will be put in place and these flights will be managed on a case by case basis, by air traffic control, as each situation is different and needs to be handled safely.

Q. Is there consideration for military flights from East of England military bases, that cross, often a low level; both the M11 & A10?

Yes, the airspace to the north has been considered, and the UK military are one of our stakeholders with whom we will be sharing these design options for comment. There are strict rules, procedures and separation standards required between military and civil flights and, this military airspace is a significant distance from our operations. Both the new departure and arrival envelopes place Stansted traffic well above this airspace. To

ensure this, all final procedures will undergo a full safety assessment to ensure that safety is assured and that will include separation with military traffic.

Q. At what stage would the decision be made and what safety/ interference would be caused by placing a turn?

If this is relating to the rules on turns, our design principles require us to align with UK and international rules including ICAO PANS OPS 8168, which cover the point at which aircraft can make their first turn. The UK rules adapted from ICAO are for no turns below 500ft. This is the earliest point we can turn, but where the turns are placed in the final designs will be informed by this process we're currently going through. The next stage is to take your feedback and create detailed routes options, presented as ' lines on a map', and we will share these options with you at the next stage in September. However, these will only be options, and the final decision will only be made following full public consultation at Stage 3.

Q. Do you have in your modelling the effect created and the noise and visual impact?

No; not as yet, as we are so early in the process. At present all we are asking is whether you agree that we've applied the design principles correctly. At this stage we are just sharing envelopes which are 4½ miles wide at 7000ft, so there is the opportunity to create a route (or perhaps multiple routes) within that envelope. We will start to model noise impact later in the process (towards the end of stage 2) once we have some defined route options (i.e. 'lines on a map'). Full noise analysis comes as we move into public consultation in Stage 3 next year.

Q. In the information provided, are you saying that flying below 7000ft will cause an interaction issue?

No; that isn't the case. There are certain areas within the London area where there is a lot of traffic operating in the height band between 5000-15000ft, and one of these is the area to the SW of Stansted. Procedures are in place for air traffic control to manage all flights safely. However, because of the interaction between climbing and descending traffic, it not possible to consistently achieve continuous climb departures or continuous descent approaches, which are part of our design principle 'Technology'. These continuous climb and descent operations are a significant part of the design principles that were agreed, so our route options have been created in areas where we have the best chance of achieving those objectives.

Q. Are there any other military considerations that you need to take into account i.e. USAF Lakenheath?

The UK military is one of our consultees and we will be sharing these design options with them for comment. However, the military airspace for Lakenheath and Mildenhall to the north is a significant distance from our operations. On both arrivals and departures, aircraft to and from Stansted have been calculated to be well above this airspace. To ensure this, all final procedures will undergo a full safety assessment to ensure that safety is assured and that will include separation with military traffic.

Q. What was the biggest change made to the original design after considering the CONOPS criteria?

The CONOPS didn't drive any changes to the designs, rather it responded to the information in the fleet survey and the design principles. It is the design principles that influence our options and our choices, whereas the CONOPS interprets and supports the design principles.

Q. What is the consequence of landing or taking off with a tail wind? Can technology reduce the associated risks to make them acceptable?

The amount of tailwind is governed by safety regulations (which are developed in association with aircraft manufacturers). All aircraft fly as a result of airspeed, i .e. the speed of the air over the wings. The consequence of a tailwind take off is that the aircraft take off run will be longer and the climb out profile is likely to be shallower as the airflow over the wings will be less than if flying into wind. This would mean that the aircraft would climb more slowly. For landings the impact is similar; aircraft will have to fly faster on final approach and their speed on touchdown would be higher. This would extend the landing run and has safety implications on touchdown hence the limits imposed by regulations.

Q. What is the contingency plan in case satellite systems go offline e.g. natural malfunction, solar interference, cyber-attack, etc.? What impact would these have on the design principles i.e. no ground based navigational aids?

The contingency procedures covering a failure of the satellite system will all be contained within the safety case that supports the implementation of our new procedures. This safety case is a requirement within the CAP1616

process and the CAA as the regulator will expect this as part of our final submission. However, in basic terms there are two fallback systems; one is the use of the inertial navigation system on the aircraft which is not satellite dependent, and the other is the monitoring and vectoring of aircraft by ATC. Whilst vectoring will not be routinely used when all systems are working normally, ATC monitoring of all flights will remain as a means ensuring safe operations.

Q. How many of the initial options envelopes do you see becoming a reality?

All of the options envelopes are viable and routes can be designed within all of them. The next stage in the process is to start designing route options (lines on a map) within these envelopes. The number of final route options that become a reality will then depend on how well different options fit our design principles, the views we receive at this stage of the process and in public consultation in Stage 3. However, we have deliberately created a set of options that provides as much flexibility as possible.

Q. Would any planned housing developments place any further constraints with regard to noise? Also, could any as yet unplanned schemes have an impact in the future?

As part of the CAP1616 process that we're following, there is a requirement for us to factor the content of local plans into our route development work at Stage 2. We will therefore be liaising with councils that fall within the initial options envelopes developed as part of our engagement at this stage to understand any additional factors of this nature that should be considered. This dialogue will continue as we move through the process beyond Stage 2 so that local councils can in turn factor in any eventual route changes that may influence their future local plans.

Q. Are you taking into account all the potential new housing developments around the area?

Yes; the process requires us to take into account all committed housing and allocated sites within our route development and assessment activities.

Q. Are STAL addressing the problem with low flying helicopters and their routes in this programme?

Helicopter operations are largely conducted under visual flight rules so they're not part of this change. This project covers the instrument flight operations for fixed wing flights in and out of the airport. Whilst our design principles require us to ensure there is access for helicopters and helimed flights, the scope doesn't cover procedures for these flights.

Q. You mention 55 movements ph. What is the maximum achieved to date?

Our design principle 'Demand' states that our 'airspace design must provide for the utilisation of aircraft movements permitted by planning permissions and within statutory limits in force at the airport'. The maximum single number of movements in a given hour (where a landing or take -off counts as one movement) that has been achieved at Stansted in recent years stands at 54. The airfield however is incapable of sustaining this level of activity without creating congestion unless minor improvements are made. This is why the recent planning permission, granted for 43mppa, included taxiway works that would improve aircraft sequencing of aircraft leaving and entering the runway. Those physical works would allow a peak of 55 movements per hour, which would only occur a limited number of times during the day, with most hours being below this level.

Q. Do your routes aim to reduce contrail formation which contribute to global heating?

The design of our routes is only up to 7000ft and this is well below the zone within which contrails are formed, so we're unable to address that.

Q. Are you planning to redraw your CTA's surrounding Stansted?

Our design principle 'Efficiency' states that we should "seek to minimise the amount of controlled airspace that we require". In redesigning both the departure and arrival routes this gives us an opportunity to assess the airspace we need and put forward suggestions to change the boundaries, either laterally or vertically if it is both safe and practical to do so. The CAA require any change to dimensions to be subject to safety reviews and an associated safety case and this would be expected to form part of our proposals for the final solution at Stage 4.

Q. Why are the beacons being taken away in a few years' time?

The current navigation beacons (also known as DVORs) were established to support aircraft navigation before the development of satellite-based systems. Aircraft technology is now significantly more advanced and in addition many of the beacons are no longer supportable. In addition, UK and European legislation requires a transition of aircraft flight procedures towards a Performance-Based Navigation ("PBN") environment which doesn't require DVORs. A number are now being withdrawn as part of a UK wide programme that was agreed in 2009 by the CAA as the regulator. Most significantly for Stansted, this includes the withdrawal of Barkway, Detling and Lambourne which are used as beacons within a number of our departure and arrival routes.

Q. The SW departure route is slightly vague regarding avoidance of Hatfield Forest SSSI and NNR - could some clarity about this environmental constraint be provided please?

Yes. In line with our design principle N3 on noise and SSSIs we can confirm that the design envelope for the runway 22 south west departures is outside of the boundary of Hatfield Forest.

Q. have you taken account of location of tranquil places/environmentally sensitive sites e.g. Hatfield Forest?

Our design principle N3 requires us to take note of areas such as Hatfield Forest and other SSSIs in our designs.

Q. Will any SSSI's be unduly affected by the proposed departure routes?

The aim of our design principles N3 on Noise is that our route designs should avoid, or minimise effects upon, noise sensitive receptors and this includes SSSIs.

Q. Has any thought been given to other proposed housing developments?

Yes, the process requires us to take into account all committed housing and allocated sites within our route development and assessment activities.

Q. How wide will the corridors be and who determines where the plane is at any given point in the flight?

The design envelopes start at the runway and gradually widen to be approximately 4.5 miles wide when they reach 7000ft. The vertical position of the flight at any given point is determined by the climb gradient, and the horizontal is dictated by the placement of "waypoints" that create the path for the aircraft to fly along. Both of these will be described in the SID and which is coded into the aircraft flight management system in a similar way to a car sat-nav.

Q. With climate change and taking into account prevailing winds are you able to review the % use of each runway end and would this impact on your potential new departure/arrival profiles in any demonstrable or positive way?

This is really dictated by the prevailing winds, which in the UK are more from the south-west. There are safety rules and regulations that mean aircraft have to land and take off into wind so unfortunately, we cannot make large scale changes on this.

Q. The UK and local council as well as businesses are obliged to comply with tackling climate change. You spoke of the technology airlines have on board to be able to safely navigate and manage the new proposed routes. What measures have you taken to ensure the airport, and the aviation industry that serves the airport, comply and invest in increased research and development into zero carbon energy options for aviation?

MAG has a long standing commitment to carbon neutrality and details of which can be found in the current MAG CSR strategy here: MAG CSR Strategy 2020. As a group, all our airports are carbon neutral and we are now working to reduce remaining emissions so that we can become net zero. More recently, MAG has launched an initiative that is offering five years free landing fees to the first electric aircraft operating at one of our airports. MAG is also supporting research as a founding member of the UK Government's Jet Zero Council. This is a much wider topic than can be addressed solely by this project, but we are able to make contributions to achieve the aims and the objectives of the strategy. In that respect, our design principles require us to consider both noise and CO_2 emissions and as we move forward with designs, we will undertake analysis that demonstrates the potential benefits in both these areas.

Q. How do you account for CO2 emissions for arriving and departing aircraft?

Once we have more detailed designs, we will be conducting computer simulations that will provide some metrics on the potential fuel burn which can be translated into CO_2 emissions for the various design options. This analysis will be contained in our Stage 3 public consultation.

Q. Do you have an average decibel for aircraft arriving and departing at each 1000ft interval? If so could you issue a sound map for each option?

We do not at the moment as these are only design envelopes that illustrate where aircraft might fly. Once we have more detailed designs, noise contours will be produced to help ascertain the pros and cons of the options being considered. This analysis will be contained in our Stage 3 public consultation and is a requirement of the CAP1616 process.

Q. What descent/climb height will the aircraft be at over Stansted Mountfitchet and Burton End?

There are no departure design envelopes that route over Stansted Mountfitchet because of the design rules relating to the first turns of aircraft. With regard to heights of other options (either arrivals or departures), it is too early to determine at this stage. These are only design envelopes and show areas between the ground and 7000ft where aircraft might fly. The exact height over any particular point can only be calculated once we have defined route options. However as general guidance, the closer to the finish of a departure envelope a flight is, the nearer to 7,000ft the aircraft will be. The opposite applies to arrivals; the start of the arrivals design envelope is the 7,000ft point, and aircraft will descend from that point towards the runway.

Q. Do the design principles address air quality impacts?

The design principles do not explicitly address air quality impacts, although our design principle

'Balance' does require us to seek a balance between noise and emissions. The CAA CAP1616 process provides guidance on this aspect, and we are only required to produce information on local air quality impacts where there is the possibility of pollutants breaching legal limits following the implementation of an airspace change. The CAA considers that this is only likely to occur at low levels and we are therefore only required to analyse air quality impacts below 1,000 feet.

Q. Does your research take into account predicted changes in aircraft type and number of movements in future years e.g. more larger cargo, long haul /more short haul aircraft and would this impact on your selection of route changes given aircraft performance differences?

We have information on future aircraft types and avionics capabilities through our work with airlines on the Fleet Equipage Survey which has helped us in our concept design. This will be reviewed as necessary, as the project progresses.

Q. It's not altogether clear how the "persons overflown to be minimised" objective is met (same for departures)?

At this stage these are only design envelopes. We will begin to evaluate how options meet this design principle as we work our way through the airspace change process.

Q. How does the reduction in business travel affect the commercial economics and the viability of an expansion and proposed design principles?

The requirement to modernise our routes is being driven by technological change and UK and International regulations to upgrade to PBN standards. These requirements are not based upon the amount of air traffic, and therefore the need to change has not been affected by COVID or the downturn in traffic. It is worth noting that this airspace change is separate from the recent granting of planning permission to the increase the number of passengers handled by Stansted to 43 mppa.

Q. Are there any new road link proposals yet to allow the traffic to access the airport or will you be using existing routes?

Road design (and the provision of any other airport infrastructure) is out of scope of this project. Our work will only be addressing aircraft routes in and out of the airport.

Q. What are the safety implications in the event of an aircraft having to abort a landing and regain altitude into the path of approaching / crossing aircraft?

All operating procedures for the future airspace, including those related to this type of event will require a full safety analysis. This safety analysis is a requirement of both the airport and ATC and will result in a

Safety Case that is a deliverable under the CAP1616 process. This safety case will consider the event, and then detail any actions or mitigation required to ensure safety is maintained. This will translate into the operating procedures used by ATC and the airlines. However, because we are only at an early stage in the design process there is not yet enough detail to start this work in any detail, but it will be developed as we progress through the process.

Q. Will noise continue to go beyond the flight paths with new routes?

By applying the principles of performance-based navigation (PBN), the expectation is that track keeping accuracy will increase. This improvement in track keeping has already been demonstrated on both the Detling and Clacton routes which have already been designed to PBN and implemented in 2018.

Q. Have you considered all elements such as noise at this stage?

We have considered all the design principles, which include noise impacts, however at this stage it is too early for us to undertake any detailed analysis, this will come later in the process. Over the summer, we will be developing routes and once we have these specific proposals, we will assess how they align with the design principles (including Noise). The results of this will be shared and will ultimately inform which options are short-listed and taken forward.

Q. What element of vectoring after 3-4000 feet is being assumed?

Our design principle on Efficiency covers the need for us to provide 'systemised' airspace which will mean that ATC vectoring in the future should be minimised. However, until we have some detailed route options it is difficult to state what amount of vectoring will be required for each option. On departures the assumption is that it should be minimal. For arrivals, the need for arriving aircraft to be spaced according to their wake turbulence category may require some ATC vectoring to both ensure we align with our design principle on Demand and Safety, and meet the rules and regulations relating to final approach spacing.

Q. The use of airspace up to 7000ft to the North and West seems extremely highly loaded, what considerations have been given to the fact that this runs through class G airspace which is currently used by six local GA, Military and Gliding airfield within this envelope. These routes also seem to offer no respite from overflying aircraft whichever way the wind is blowing. Can you see an alternative to this concentration at heights below 7000ft?

Our design principle on Efficiency has a clear statement that we should minimise the amount of controlled airspace we require, and therefore any routes to the NW that we propose will not route through any class G airspace. Routing commercial traffic through Class G airspace would also not align with our design principle on Safety, and this is not being considered. With regards to respite, one of the limitations of the current route structure is that it provides no respite to certain routes because of the limited number of options available. The design envelopes we've put forward have included additional options (to the south west from runway 22 and the north east from 04). Subject to the rules on route design it may also be possible to create several routes within one design envelope. When combined, these could provide the opportunity to share aircraft over a greater number of routes in different areas, thereby reducing the concentration that is currently experienced.

Q. Is there or will there be any analysis between the options on the effect on overall flight distances and the related environmental/energy effects.

Yes, we will evaluate all of our routes against the design principles. Fuel efficiency is supported by the design principle that relates to Balance DP and this also covers CO_2 and this will form part of our analysis.

Q. I am interested to know if the planned expansion of housing in the area between Cambridge, Saffron Walden and Royston, which represents a massive increase in housing has been taken into consideration? There are three "garden villages" of 10,000 plus houses and other smaller development under consideration at this moment.

The process requires us to take into account all committed housing and allocated sites within our route development options. We will be liaising with councils that fall within the initial options envelopes developed as part of our engagement. This dialogue will continue as we move through the process beyond

Stage 2 so that local councils can in turn factor in any eventual route changes that may influence their future local plans.

Q. Do the route design considerations take into account environmental issues such as ecological imbalance?
I'm not exactly sure of the meaning of ecological imbalance, but the design principles on Balance states that our designs will consider both noise and emissions. In terms of design, this means we will seek to minimise the route miles that an aircraft flies, but we also have to be aware of noise which is another of our design principles and which the Government guidance require us to prioritise below 7,000ft.

Q. What happens when aircraft have to be redirected from other airports which could have some impact on available air space for departures?
Aircraft diversions from other airports are a separate consideration from the design of these options. These diversion procedures are implemented by air traffic control (ATC) and take account of our route designs, but individual flights will be managed by ATC on a case by case basis. Each situation is different and needs to be handled safely.

However, because there are such a low number of diversions, any impact on departures will be short term and have minimal impact.

Q. Should all (suitable) planes try and use the 6-mile limit as the main point they start their descent / line up for landing? It seems planes currently start this process some 9 -10 miles away which affects several villages that it may not need to.
At present, there are noise abatement rules that are set by the UK Government that stipulate the minimum distance that aircraft should be established on their final approach. This may account for some of the variation that you're pointing out.

At present these daytime rules are a minimum of 2,000ft above mean sea level between 0600- 2330 and this equates to between 6 and 7 miles. Between 2330 and 0600 the minimum is 3,000ft above mean sea level which is approximately 10 miles. To change these would need Government approval, but this does not restrict us to looking at alternatives within the scope of this project in line with the agreed design principles relating to Noise.

One other cause of the variation is that when there are a large number of arriving aircraft, the slowing down of aircraft on final approach to land creates bunching. This means that air traffic

control need to vary the point at which they turn aircraft onto final approach. This is a normal procedure that takes place at all airports and is partly to avoid delays (which would result in aircraft burning more fuel) and to ensure the legal distance behind other aircraft on final approach, also known as wake turbulence separation.

Under the new airspace, much of this vectoring will reduce, although some may still be required in order to ensure compliance with these wake turbulence rules, which in turn ensure safe operations.

Q. Why should continuous descent be more fuel efficient than keeping the aircraft at high altitude for longer (where it burns less fuel) and going for a more rapid descent, which would mean fewer villages are affected by the noise?
The process of descending aircraft in busy airspace is complex, especially in an area such as London that has large volumes of traffic that are both climbing and descending. Air traffic control (ATC) need to descend aircraft to certain heights that ensure they remain within controlled airspace, whilst also maintaining a safe distance from other air traffic. This means that it is currently seldom possible to provide a CDA from cruising levels unless it is quiet.

The Stansted airspace project only deals with flights below 7,000ft and below this altitude the trajectory of the Continuous Descent Approach is calculated by the aircraft to provide the most fuel-efficient profile. This generally means without significant engine thrust and it is this that reduces the fuel burn.

In terms of steeper descents, there are recommendations applied by the International Civil Aviation Organisation (ICAO) and overseen by the UK Civil Aviation Authority (CAA) which advise on descent

gradients. These cover both the initial approach where the recommendation is 5%, and the final approach phase (when the aircraft is in line with the runway) where the standard is 3%.

In line with our design principle on Safety we have said we will comply with national and international industry standards, and the arrivals design envelopes we are outlining in this phase are in line with these recommendations. Where this is not possible (for example in some of the arrivals envelopes to 04 which may be a shallower gradient) we have highlighted this in our discussions with you. However, in looking at alternatives to align with our design principle on Noise we are able to investigate whether slightly steeper final approaches could provide a benefit.

That said, a more rapid descent does not necessarily equate to less noise. In fact, in some cases a steeper initial descent gradient may increase noise on the ground due to the need to apply speed brakes to create a safe and stable approach. There are examples of significantly steeper final approaches at some airports, London City being an example, but these procedures are limited to certain types of aircraft and are not flyable by the majority of the aircraft that fly into Stansted. Because they are not widely useable, the implementation of these procedures would not align with our design principle on Technology.

Q. Keeping the noise and pollution measures down is a great significance to local people, but would this impact much of local historical, environment, and other places of interest. Who is responsible in deciding which aircraft can land quicker or slower than others?

The aim of our design principles on Noise, and in particular N3 is to limit the impact of noise. Specifically, N3 says that where practical, our route designs should avoid, or minimise effects upon, noise sensitive receptors and this includes the type of areas you've mentioned.

With regards to the decision on landing preference, this is made by air traffic control and this involves a consideration of the aircraft position, approach speed and size. However, in general terms, aircraft are landed on a first come first served basis and would not usually be delayed to give preference to another flight.

Q. It's good to have these boundaries but what if a plane has to break those boundaries because of an emergency?

I'm not exactly clear which boundaries you are referring to but I am assuming the design envelopes?

All of the routes within these envelopes have a degree of safety built in which is prescribed by CAA rules. However, if an aircraft cannot fly one of the routes because of an emergency they will be in contact with air traffic control who will issue appropriate instructions to ensure safety, and also ensure that any conflicting aircraft are moved away. This is the same as how aircraft are handled today, and the procedures that are developed will form part of the safety case that supports the new airspace.

Q. What is the risk of breaking these constraints? What damage could be done to the local area if the planes cannot keep to the constraints. Is there any room for moving the constraints or are they fixed?

With regards to the risk of breaking the constraints, one of the reasons we conducted the fleet survey with airlines is to understand what they would be able to fly to align with the design principle on Technology. In addition, we have applied the rules and regulations of ICAO and the CAA which have been created in association with aircraft manufacturers and take into account how aircraft fly. Therefore, we believe that our work to date takes a reasonable account of the constraints and therefore that the risk of aircraft breaking them is low. However, in order to confirm this, the final route designs will need to undergo a test that is known as "Flyability". This tests the ability of aircraft to fly the new routes under different conditions. The results of this will form part of the Safety Case which is submitted as part of our final designs. The constraints themselves are not fixed but represent the situation today and reflect known plans and operations. This is particularly the case for the traffic for adjacent airports, and this is one of the reasons we are working closely with all of the London airports to understand what they are doing and where they are planning routes. If the map of constraints changes as we move through the process then, yes this would result in us reviewing our design options to confirm if changes need to be made.

Q. As far as I can recall, there has been no mention of night flights. I wonder whether they would be spread over all the options identified or restricted to certain design envelopes?

The options we have developed so far have been created to identify the broad areas where we could create routes. At this relatively early stage, we have not considered how each route might be used as part of the system of routes that we operate. We can only start to do this once we have a more detailed idea of actual routes, which will come later in the process (at Stage 2 and into Stage 3). Proposals on when routes should be used will cover operations across the whole of the 24 hour period (not just night time operations) and will be shaped by several factors. These include our design principle N2 which requires us to consider noise relief, and the feedback from engagement in both this stage and the formal public consultation in Stage 3. Conversations with NATS and other adjacent airports will also need to be factored in as there may be times when the upper airspace network is more able to manage traffic on a particular route.

Q. Am I right in thinking that LOREL is currently shared with Luton and thus will have less traffic once the Luton stack is separated?

Yes, that's correct. Luton have just completed consultation on an airspace change called AD6 which will separate their traffic from the LOREL and ABBOT holds. This is expected to go live early next year subject to CAA approval, and at this point, all Luton traffic will route to a new holding facility situated towards Bedford.

Q. What is a typical noise level (on the ground) for an aircraft at 7,000 feet?

This depends on a number of factors including the aircraft type, the engines and the weight. We will start to model noise impact later in the process (towards the end of stage 2) once we have some defined route options that we can analyse. Full noise analysis comes as we move into public consultation in Stage 3 next year.

Q. Is there any possibility that the areas that have been avoided because of potential conflict with other airports may be freed up with their airspace change activity?

Yes, that is a possibility, and because of that we are already talking to Luton, Heathrow and NATS who are likely to have the biggest impact on our operations. We have also spoken with Southend and are planning discussions with London City when they re-start their airspace changes. However, we expect the airspace to the NE of London to remain highly complex because of the close proximity of so many airports which will limit the opportunity for significant areas to be freed up.

Q. In developing the design envelopes what consideration has been given to the impact on night flights

At present we are not looking at the "how" we operate but just whether we have created envelopes that align with the agreed design principles. Therefore, we haven't looked at night time operations specifically. That said, the design principle N2 leads us to consider how we can create predictable respite or relief, either through the design (where the routes are) or how they are operated and that would include night operations.

Q. Has any estimate been made of the number of people under new flightpaths? Secondly, does noise relief take priority over fuel efficiency?

At this stage it's not possible to make an estimate of the people being affected as the envelopes are so wide. However, once we start to get more detail, yes, we will provide that as we will have more specific routes to analyse. With regards to noise versus fuel, the Government rules require us to priorities noise over fuel burn in our designs below 7,000ft. However, we also have a design principle on Balance, which requires us to consider fuel burn aspect within these rules. Both of these aspects will be considered in our design principles evaluation which will consider all design principles equally. We are currently developing the design principles evaluation material which will provided as part of our stage 2 submission to the CAA.

Q. Will PBN allow for multiple routes thus giving respite?

Yes, there is the opportunity to provide multiple routes within the design envelopes, subject to ensuring we are aligned with the rules that apply to the design of PBN routes.

Q. Who can I contact if I need further information?

Please email futureairspace@stanstedairport.com or call 01279 663 482 and leave a message, a member of the airspace team will call you back.

	Stakeholder feedback said….	We did…..
Arrivals respite	Implement multiple route options within an envelope to create respite and minimise noise impacts to local communities.	We have designed multiple routes within an envelope, where it is appropriate to do so. We will consider implementing multiple routes with an envelope when we come to combine the route options into networks as part of the next stage of the design process.
Departures respite	re the options for each runway to be considered together to operate alternately for respite	The route options will be combined in different ways to find the optimum system of operation. This suggestion will be investigated as part of the next stage of design when we start to combine route options into operating networks. Respite, i.e. sharing noise, will be an important consideration in this process.
Considerations to local sites	Consideration should be given to; • designated and non-designated heritage assets (ancient monuments, listed buildings, registered parks and gardens and conservation areas). • Sites of environmental importance and special landscape areas. • Schools, early years and childcare facilities, facilities for special educational needs and residential care homes	As set out in CAP1616, sponsors are required to consider sites such as AONB and National Parks. The inclusion of the additional sites set out in the feedback statement would result in a large amount of designable areas being discounted, so we have not included them as part of our principle evaluation in this stage. However we will map all of these resources, so we have as full a picture as possible of the assets that sit underneath proposed routes.
Roydon	It should be noted that Roydon has a large conservation area at its centre and is therefore a cultural asset. Option 5 also passes close to the SSSI of Hunsdon Mead.	As set out in CAP1616, sponsors are required to consider sites such as AONB and National Parks. Whilst the inclusion of the additional sites set out in the feedback statement are not classed as noise sensitive receptors. Our GIS specialist will map these sites so we have as full a picture as possible of the assets that sit underneath proposed routes.
Farnham	I am concerned that the village of Farnham will suffer an increase in noise and air pollution	This impact of route options will be evaluated as part of the DPE and impact assessments.
Ware	Consider alternative route options for Runway 04 West Arrival Envelope that could avoid Ware.	A number of arrival envelopes have been designed at this stage, meaning there are a number of route options provided that avoid overflight of Ware. In addition, a range of joining points has been designed within the Runway 04 envelope which would reduce the impact on areas overflown. The likely impact of each route option will be assessed as part of the DPE and IOA.
Sawbridgeworth	Overflying Sawbridgeworth with departures cannot be acceptable especially when the town is already affected by arrivals.	We have presented a range of options with multiple route options within each envelope, some of which do avoid flying over Sawbridgeworth. The impact of each route will be assessed as part of the DPE and IOA.
Urban development	Future urban development north of Stansted in the M11 Corridor from Stansted to Cambridge where tens of thousands of houses are planned	This feedback is being investigated as part of the next design process in Stage 2, the impact of route options will be evaluated as part of the DPE and impact assessments

	Stakeholder feedback said….	We did…..
Pleshey	Pleshey Is classified as an Ancient Monument with planning restrictions. Option 3 for 22 East should be amended to avoid Pleshey village (conservation area and ancient monument)	As set out in CAP1616, sponsors are required to consider sites such as AONB and National Park . Whilst the inclusion of the additional sites set out in the feedback statement are not classed as noise sensitive receptors. We will of course map these sites, so we have as full a picture as possible of the assets that sit underneath proposed routes.
Princess Alexandra Hospital	Has the proposed relocation of Princess Alexandra Hospital been accounted for?	The proposed location for Princess Alexandra Hospital is included in the area identified as a proposed housing growth area north east of Harlow so the site is already identified.
Urban developments	Extensive development along the A131 Chelmsford-Braintree corridor which should be factored into your plans.	This suggestion is being investigated as part of the next design process in Stage 2 and routes will be evaluated as part of the DPE.
Gas venting Station	Route 23 for R04 seems close to the GVS	We're reviewing the constraints and considerations on the designs based on feedback and further research. We expect GVS to be reduced from a constraint to the lower classification of a consideration because of the height that the hazard extends to (it is well below the departure and arrival routes we have created) .
Housing plans	Identified discrepancies in housing plans should be amended	We requested local plans from the relevant councils and as such plans provided by 31st October 2021 have been mapped correctly. Our GIS specialist will continue to review and update as we move through the process.
Solar Farm	There are proposals for a 1400 acre solar farm in Terling with 700 acres actually under PVs.	The effect of existing solar farms and those with planning consent on the safe operation of any specific route will be assessed as part of the permissions and safeguarding process.
Noise impact	There should be a distinction between absolute and marginal noise impact. Noise over a built-up area has a lower impact than the same absolute noise over a rural area.	This is not possible at this scale of assessment at this stage as we do not have the background noise levels available to us as they are not measured and reported by any authority. Also government policy does not recognise this distinction, it does recognise that tranquillity is important to some sites and we have taken account of this consistent with the requirements of CAP1616.

	Stakeholder feedback said….	We did…..
Road network – A414	Focus for arrivals Runway 04 should be on preferable route north of A414 where there are fewer residents, avoid Hospital and largest town in the area (Harlow) and Hospital.	We have developed a range of route options many of which are to the north of the A414 to recognise this point, but in order to provide a comprehensive list of viable options we have also created routes to the south. The area that is further to the West and North of the current design envelope would place the route options in the area that we have identified as a constraint for arrivals due to the interaction with departing flights from Luton and other airports. This would not align with either the safety or efficiency design principles. However, we have sought to create options that make the maximum use of this area within these boundaries/constraints. The complete avoidance of Harlow when operating on Runway 04 is difficult because of the proximity to the airport and to the extended final approach. There are ICAO PANS OPS policy requirements for aircraft to safely stabilise on final approach prior to landing and this has been factored into design of the final approach procedures.
Road network	Consider a route option following the track of the M11 North. Runway 04.	This feedback has been investigated for the benefits that it would create. In relation to noise, we have already designed two options that route through this sparsely populated area to the west of Saffron Walden (options 3 and 6). In summary, to create a further route option would not appear to offer any noise benefit in avoiding towns or settlements. With regards to fuel burn, to provide an option that follows the track of the M11 would require multiple turns to be designed and increase the tack track miles and fuel burn. On this basis it doesn't appear to offer any clear benefits.
4,000ft joining point	Consider a 4,000ft joining point for final approach.	A 4000ft joining point will have an impact on the design area for a CDA to both runways, as it would result in a final approach of approximately 15 miles for each runway end. Therefore this option will not meet the 'must have' design principles.
Extended joining point	Joining extended centreline at a higher altitude would minimise ground noise experienced due to increased thrust required to turn from downwind to base leg and from base leg to final approach.	An extending centreline joining point will have an impact on the design area for a CDA to both runways, as it would result in a final approach of approximately 15 miles for each runway end. This would have the effect of eliminating the overlap area within which a CDA is possible to both runway ends. Consequently this suggestion would not align with Design Principle Policy (P) and therefore is deemed as viable but poor fit. In addition, a 4,000 feet joining point would lead to a concentration of traffic on an extended 15 miles final approach, when stakeholders have consistently asked us to prioritise the sharing and dispersal of noise and to avoid this type of concentration. However, because we have designed arrival options that provide for a CDA, there should be a reduced requirement for an aircraft to apply thrust when turning on to final approach.

	Stakeholder feedback said….	We did…..
Runway dependent holds	Wouldn't different holds for each runway provide greater flexibility, and avoid the CDA problems for 04?	This is a concept that we explored early on but there is both an airspace and a safety consideration. The main issues occurred when the runway direction changed after the arriving aircraft was airborne and were made more difficult to manage because there are so many airports in the London area. From an airline and NATS network safety perspective, the option of runway dependent holds is not currently being pursued at any airports in the UK.
Runway dependent holds	I assume you are basing it on one hold for both runways	This suggestion is being investigated as part of the next design process in stage 2. We will continue to engage with NATS to create an efficient system and routes will be evaluated as part of the DPE.
Runway dependent holds	Runway dependent network	This is a concept that has been explored but there is both an airspace and a safety consideration. The main issues occurred when the runway direction changes after the arriving aircraft is airborne and is made more difficult to manage because there are so many airports in the London area. From an airline and network safety perspective, and to the best of our understanding, the option of runway dependent holds is not being pursued at any airport in the UK.
Climb gradients	Reduce the required climb gradient for long-haul flights (heavy airplanes),or set up a procedure to handle them.	Different climb gradients have been provided for as part of our Alternatives design principle. The 8% climb gradient that we have designed to is capable of being flown by the majority of aircraft that fly into Stansted. For those that cannot achieve this we have created reduced gradient route options at 6%. From discussions with these airlines, we have been assured they can achieve these and this minimum also aligns with the NATS network requirement for London Airspace.

	Stakeholder feedback said….	We did…..
South West Envelope	R22 SW, options should be reconfigured to avoid Harlow and Gilston (large new development)	Multiple departure route options have been developed within this envelope that cover different ways to respond to the design principles. In particular Option 3 which routes to the north of the envelope and the area of the Gilston Garden Village proposal that is not planned for housing development, and Option 4 which routes more to the south of Harlow. The likely impact of each route option will be assessed as part of the DPE and IOA. This envelope has been based on finding the most fuel efficient (and therefore lowest CO2) route to the south west when compared to the current routes. However, this is a complex area of airspace and we will continue to work with NATS and Luton (with whom this route may interact) to seek an optimal route that is both safe and efficient. We will also investigate the possibility to reconfigure the first part of Option 3 to avoid new housing developments in the south of Bishops Stortford.
South West Envelope	R22 SW, option 3 should be modified to avoid Hoddesdon and follow the A10.	As part of the process to create multiple route options there are routes within the envelope that avoid Hoddesdon. Furthermore, because the A10 runs north south across the end of the design envelope, to create a flyable turn that intercepts it would result in aircraft overflying central Hoddesdon rather than avoiding it.
South west constraint	The assumption that the existing constraint to the south west, due to other airports traffic, will still exist in this new plan has presumably influenced the options.	Placing an arrival structure at 7,000ft in the middle of this area of predominantly climbing traffic would create multiple interactions between our descending aircraft and other climbing aircraft such that neither operations could operate efficiently. We don't believe that designing in these interactions aligns with our safety design principle. Furthermore, it is not in line with the Government Airspace Modernisation strategy which calls for interactions like this to be eliminated where possible. In addition an arrival structure in this area would is unlikely to consistently deliver a CDA to Stansted from 7,000ft, which would not align with the Policy design principle.

London Stansted Airport Future Airspace

Stage 2, Develop and Assess
Q&A – phase two engagement, arrivals

November 2021

MAG London Stansted Airport

Q. Some of the options appear to overfly highly populated areas which would not be line with your design principle N1?

The options we have presented will vary in how well they meet each individual design principle, and some will more successfully meet some principles than others. For example, some routes have been explicitly created to align with Noise N1, but this may mean a longer route which is less aligned to the fuel burn requirement in the Balance design principle. Similarly, some will take a more fuel- efficient route but which may overfly more people.

The next stage of work will include a full design principles evaluation which will objectively assess the performance of each option against each principle. This will give a clear picture of how each option aligns with the principles individually and as a whole.

Q. Have the design principles sought to ensure aircraft are established on the extended centreline as far out as possible, to avoid, noisy low-level turns?

We have looked at the parameters that are permissible within the rules for designing routes , and to

provide the potential for spreading noise you'll see different joining points.

However as with the departures, we haven't yet analysed the noise generated by any of the options. Ultimately the joining point will be part of how the designs are operated which will be developed in Stage 3. We also need to be mindful of the limits of the controlled airspace available to us and aligning with our design principle on Efficiency to limit the amount of controlled airspace we require.

Q. Bringing in aircraft to join the centerline at 2000ft does result in lots of noise as the aircraft turn on to the final approach. Why not provide for joining at higher altitude, at 4000ft, as LHR does?

We haven't yet analysed the noise associated with different joining points. However, the 2,000ft is a minimum and we have also shown options for joining points at 2,500ft and 3,000ft which are similar to those under current operations.

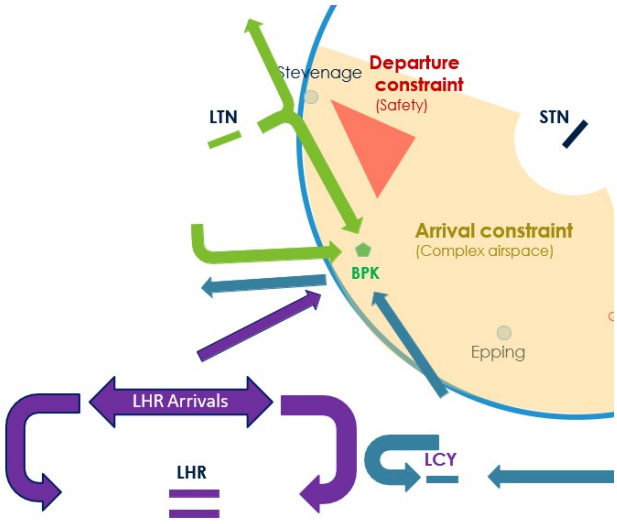
A 4000ft joining point will have an impact on the design area for a CDA to both runways, as it would result in a final approach of approximately 15 miles for each runway end. This would have the effect of eliminating the overlap area within which a CDA is possible to both runway ends.

It may also result in aircraft joining final approach in an area which is outside of current controlled airspace. Whilst this does not rule this out as an option it would not be consistent with our Efficiency design principle.

Our initial design work has therefore led us to view this as a viable but poor fit option. We will however consider this feedback as part of our review following this phase of engagement.

Q. I assume someone will be using the complex airspace to the southwest, so is it necessary to exclude all that airspace as not preferred?

We shared a diagram on the complexity in this area in the first phase of engagement but to help explain the constraint we have reproduced it below. It is also worth pointing out that we will be using part of that area to guide aircraft onto the final approach for runway 04 but at a height which is underneath the interactions that create the constraint. The constraint exists at the higher levels meaning we wouldn't start our arrivals at 7,000ft in this area.



The area where we've created the arrival constraint centres around the navigation beacon at Brookmans Park (BPK circled in red on the map). This is within our design boundary and is used as a point on departure routes from Luton, Heathrow and London City making this an area of highly congested airspace dominated by climbing traffic.

Looking into the future, the reliance on routing via this beacon will reduce as airports transfer to Performance Based Navigation (PBN).

However, even if there is some movement of routes, this will remain a highly congested area for departures because of the close proximity of the airports and the need to connect to the upper airspace network system to leave UK airspace.

Placing an arrival structure at 7,000ft in the middle of climbing traffic would be similar to walking down an up escalator. It would create multiple interactions between our descending aircraft and other climbing aircraft such that neither operations could operate efficiently.

The result would be that the potential to provide a CDA at Stansted may only exist at the quietest times of the day. At other airports, their operations would likely be compromised by our arrivals, resulting in inefficient and more noisy departures, and addition fuel burn caused by not being able to achieve a constant climb departure.

In summary, we don't believe that designing in these interactions represents a safety-first strategy. Furthermore, it's not in line with the Government Airspace Modernisation strategy which calls for interactions like this to be eliminated where possible and would limit the ability for the new airspace system to deliver a CDA to Stansted from 7,000ft, which would not align with the Policy design principle.

Q. It seems the area to the southwest has been excluded because of traffic from other airports? Should that really be seen as a constraint?

The area to the southwest has not been excluded as a constraint to all aircraft, in fact we have created route options for departures in that area and will be using the lower area of that for our arrivals as that is the extended centreline for runway 04 arrivals.

As detailed in the previous question, the constraint applies to where the arrivals start their descent at 7,000ft and the interaction between climbing and descending traffic that would arise.

Q. Those envelopes do not correspond with the approach envelopes provided in the June consultation document?

That's correct and they are different because of the logic we have used to apply the Policy design principle to create Continuous Descent Approaches or CDA.

Firstly, both the Air Navigation Guidance and the Airspace Modernisation Strategy highlight the use of CDAs as a means to create an efficient airspace system with less environmental impact. Our arrivals

designs must therefore provide these CDAs to both runway ends to meet the "must have" Policy design principle.

Secondly our Safety design principle requires us to apply the rules of the UK CAA and ICAO. These recommend an optimal gradient for a CDA to be between 3½ % and 5¼ %. When we apply this gradient, this equates to an approach length of around 25 to 32 miles from 7000ft to landing. By also applying the ICAO rules on the joining point onto final approach this creates a circle within which a CDA is possible.

Where the circles for runway 22 and runway 04 meet is that area where a CDA is possible to both runway ends. This has had the effect of reducing the design area, but with the benefit that our arrivals are better placed to reduce noise and emissions.

Q. Will the LOREL and ABBOT holds remain as now? Is there any possibility of changing them?
The LOREL and ABBOT holds are the responsibility of NATS who are also running an airspace change on the terminal airspace in the London area above 7000ft.

Like Stansted, they are required by the process to look at a range of options for how aircraft will hold in the future, and they will be starting that process in the new year.

They will be following the same CAP1616 process as us and we will be working closely with them to discuss the type and placement of the holds to align with our design area and options.

Q. Surely decisions on the holds are crucial to examination of the arrivals options?
Yes, they are crucial, which is why we have such a wide range of options at this stage. We need to work with NATS and also other airports to deconflict the routes and that will take place over the coming months as they move through this process. Only with such a wide range of options can we find those that best fit both our design principles and the need to "design out" interactions.

Q. I understand there is due to be a separate consultation on 'stacking/holds' so how will this fit in with that process?
The CAP1616 process requires us to have bilateral meetings with NATS who oversee these holds in order to understand and resolve any conflicts.

These meetings will first identify the constraints and implications, and then mutually resolve the issue and record the outcome. The outcome of these meetings will be included in the evidence base to the CAA at the gateway meetings which allow us to pass to the next stage. Without this evidence we will not be allowed to proceed until there is agreement and resolution of all interactions.

Q. Am I correct in thinking that the assessment is based on an assumption of the location of the hold(s) and also the appropriate height to join the centerline?
That's partly correct. We have applied the shallowest CDA and the optimal height to join the centreline within the rules to understand the theoretical design area. That is what you could see in the green overlapping area in the diagrams that we showed in the presentations.

However, there remain a large number of options because there is no assumption on the area of the hold as this is down to discussions and agreement with NATS.

Q. In the diagrams all the routes, start, using the East as an example, from the South East. Is that because all aircraft, regardless of your routes, start from that direction and are out of your control? Or, are you forcing aircraft to start from that direction?
The area we have defined is based on the ability to provide a continuous descent approach, so the starting point is determined by that area.

We could start our arrivals either to the east or west, but we are also looking at whether two arrival facilities would be possible or something that as stakeholders you have a preference for. Hence the questions we have asked on preferences regarding relief and respite.

Q. There is a quite a difference between the design envelope published in June (within which it was said the routes would be within), and these arrivals routes. All are much closer in than said in June. What's the reason for the change?

The reason for the change is because of where it is possible to provide a CDA as these are both quieter and more fuel efficient.

By applying the rules on design we have created the area where a CDA is possible to both runway ends. Outside of the overlapping area, a CDA to only one runway would be possible. That has had the effect of reducing the area to design within.

Q. Wouldn't different holds for each runway provide greater flexibility, and avoid the CDA problems for 04?

This is a concept that we explored early on but there is both an airspace and a safety consideration. The main issues occurred when the runway direction changed after the arriving aircraft was airborne and were made more difficult to manage because there are so many airports in the London area.

From an airline and network safety perspective, and to the best of our understanding, the option of runway dependent holds is not being pursued at any airports in the UK.

Q. I am aware of proposed housing developments that do not appear on your map and one that is on your map but is now not going ahead? Would this change the placement of your options?

The options we have presented take account of the available data at the time of their development. During this phase of engagement, we are asking for your feedback on anything we may have missed. This will help inform the next phase of design.

London Stansted Airport Future Airspace

Stage 2, Develop and Assess
Q&A – phase two engagement, departures

November 2021

MAG London Stansted Airport

Q. Do you have an anticipated timeline for the project particularly when we might expect public engagement?
Full public consultation is expected to take place late 2022/2023 but this is subject to approval from the CAA. Whilst we have preliminary timelines for our elements of the project, many aspects of our work will be subject to the outcome of design work at other airports. There is therefore a masterplan being created that is looking at how the changes for all London airports within the Future Airspace Strategy Implementation (FASI) will be deployed.

Q. Is 19th Nov a hard deadline for outbounds only or including inbounds from next week?
A. No, 19th Nov is just the deadline for feedback on departure options.

Q. Given that Uttlesford doesn't have a current local housing plan, what assumptions have been as to the location of future housing?
A. The lack of an LHP for Uttlesford has been recognised, so within this phase we have had to work on the best available information which is their 5-year housing supply statement. As their Local Plan progresses, we will keep abreast of proposals and respond accordingly.

Q. I noticed that options 5A & 11B overfly St Elizabeth Centre, at what height?
A. At this stage we haven't done any modelling on heights over specific areas as the focus in this stage is around the application of design principles and addressing feedback.
In some cases, the options we've shown may meet some design principles better than others. For example, a route that is more fuel efficient in line with the Noise design principle, may be less favorable in relation to for example one on Balance or vice versa. However, both are viable options to design and as we progress through our design principles evaluation we will have more information available.
As we move into stage 3 and refine options down, we will be in a position to share the information on heights.

Q. Is the relationship between noise and altitude linear? e.g. is the noise halved at double the altitude? Will all aircraft likely be at the same power setting in the climb to 7,000ft?
A. Noise isn't a linear function and is a complex aspect to model. We haven't started to calculate noise footprints at this stage because these are only options and are subject to feedback (and resolving the interactions with other airports). However, we are required to do this noise analysis later in the process.
If we ignore all the other variables, such as weather, power settings/aircraft configuration and simply concentrate on the distance from 'source' to 'receptor', then a rule of thumb is doubling the distance, reduces the sound level by around 6 decibels. That is a perceptible difference, but a 10-decibel reduction is perceived by most listeners as being half as loud.

With regard to thrust settings, this will be influenced by both the gradient we design and airline noise abatement procedures. These airline procedures are contained within ICAO documentation and result in thrust being reduced at certain altitudes to reduce noise. We will be working with the airlines to understand how this impacts our designs and how best we can use these to reduce noise impacts where possible.

Q. Is Noise considered as the absolute noise created by an aircraft at a given altitude or the additional or marginal noise i.e. reflecting the background noise of a location?
A: In assessing noise we are required by the CAA CAP1616 process to consider the absolute noise of an aircraft, as experienced on the ground.

Q. Can you confirm that Scheduled Monuments and Registered Parks and Gardens are also included as part of the sensitive areas?
A: These are not included in that list as there is not a clear link to our design principles. In accordance with design principle N3, we have identified sites and buildings that are particularly sensitive to noise rather than for their historic importance.

Q. Are conservation areas relevant to design principles?

A. We are in the process of mapping these areas to provide information as we progress through the process. This mapping will also cover listed buildings, registered parks and gardens, scheduled monuments, and registered battlefields. However, unless we are proposing something that may affect the designation of the area, they will only be a very minor consideration in the choices between routes.

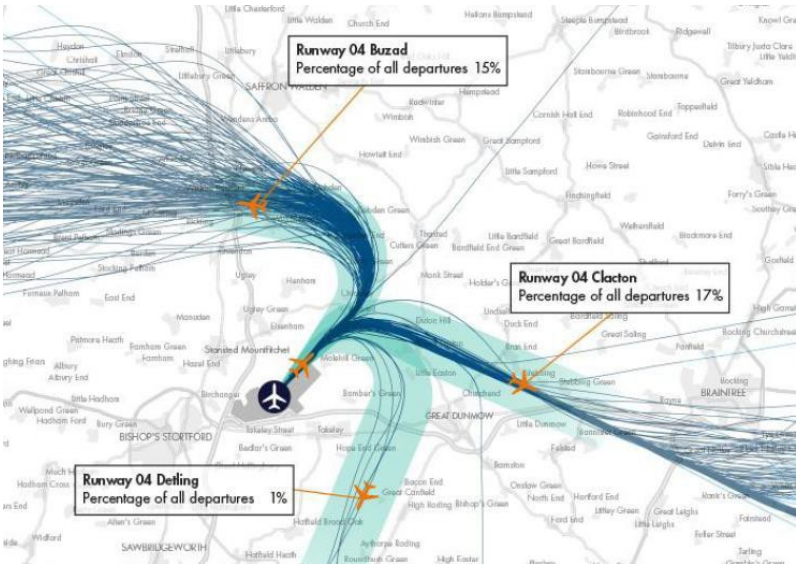
Q. Can you remind us about the ratio of number of departures between 22 and 04. Is it 70:30?

A: Yes, that's about right. For safety and operational reasons, aircraft depart and land into the wind, so wind direction dictates which end of the runway to use. At Stansted, and as in much of the UK, the wind comes predominantly from the southwest. For this reason, aircraft arrive and depart in a south-westerly direction around 70% of the time, although this can vary from month to month and year to year.

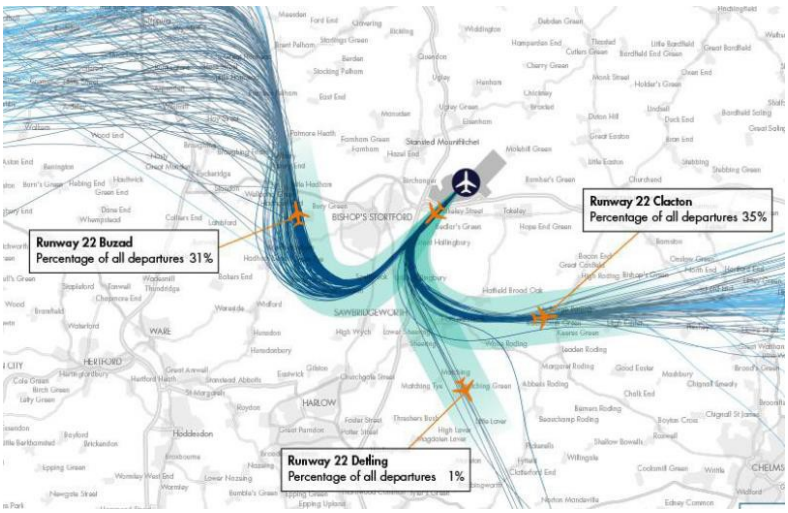
Q. What is the current % distribution of departures?

A. Typical summer traffic distribution is shown on the maps below which we shared with you earlier in the year. It should be noted that this distribution is based upon the current designs, and operational constraints that exist. One of the objectives of this project is to create a greater spread of traffic which links to the design principle N2 to create noise relief or respite. This may be created by additional routes which would change the percentage allocation on each route.

Runway 04



Runway 22



MAG London Stansted Airport

Q. On the subject of emissions and fuel, is it possible to give real numbers for each route option? E.g. route 1 vs route 2 burns xx more kg fuel for a specified aircraft (b737max)?

A. This is not available at this stage, but yes we will be conducting this type of analysis, and the results of this are likely to be available as we consult in stage 3. As part of this work, we will also seek to understand the comparative benefits of one envelope versus another, and how these influence the total fuel burn for the flight. For example, how much more fuel efficient could it be to route directly to the south west, rather than making a turn to the north first, and then resuming this south western track later.

Q. Does an aircraft departing on an 8% climb gradient cause higher noise levels (initially) than one climbing at 6%?

We haven't started work on noise contours or looked at the engine setting required by the airlines. By getting higher more quickly, our expectation is that the impact of noise will reduce more quickly, and the total number of people affected should be less. However, higher initial noise is a possibility but there are also the operating procedures of the airlines to be taken into account which may mitigate this. The noise analysis will be performed as we move into stage 3 early next year, and the results of that will be part of our formal consultation material.

Q. Is there an expectation of reduced night flying going forward?

This process is about future airspace design and where we design the routes. Night flying and night noise has its own rules and legislation and although there are proposed updates to night flying regulations, this is a separate consultation being undertaken by DFT. It is not therefore part of the work that we are engaging upon.

Q. In the context of noise and respite, why is the airport opposing proposed bans on the noisiest aircraft types?

Noise is a separate consultation being undertaken by DFT, however we are not opposing bans on the noisiest types or aircraft. Our airline charging regime encourages the use of quieter aircraft and in terms of night noise, we go beyond the Government restrictions, and have introduced a voluntary ban on additional operations by noisier aircraft. We are also in the process of seeking permission from the Government to lower our departure noise limits.

Q. Reduced noise also comes about with quieter aircraft, will this be considered too?

There are local regulations that exclude the noisiest aircraft from operating at Stansted, but that is governed by a separate process and regulations. Our aim in this project is to create route options that best match the design principles including those on Noise, and we are aiming to make the best use of the technology they have, to limit noise impact. This will include looking at operating procedures in the later stages.

Q. If some of the routes are going to be used for respite will the airlines be briefed?

Yes we have sessions in this phase to speak with airlines as they are vital stakeholders in creating a workable design. Once the designs are agreed and approved by the CAA, there are formal communications procedures and regulations that ensure airlines are briefed and that their systems and charts are updated to reflect the new operation. That will include any procedural changes such as respite.

Q. Will the routes be time restricted which would be a good way to ensure environmental noise respite?

As we move forward with the designs in Stage 3 we will need to consider how the routes will operate as a system. Aspects such as time restrictions to create noise relief or respite fall into this area, but we would be interested to hear any views that people have on this subject now to inform our thoughts.

Q. Why are there no options following the track of the M11 north?

We discussed in the presentation the need to follow the rules according to PANS OPS 8168 with any option that is not aligned to these being Unviable. From runway 22, the only envelope to design via the M11 to the north would be the 22 North, as all other envelopes route in a different direction after 7,000ft. However, because the M11 is so close to the airport an immediate right turn (north) from runway 22 to

route up the M11 would not be consistent with these PANS OPS rules so this option is unviable. From runway 04 again the only envelope that facilitates routes north via the motorway is the 04 North. PANS OPS rules dictate how tight the turn can be and the point at which a parallel course with the M11 could be achieved. Even with the earliest turn possible, the multiple turns required to intercept and then follow the M11 north at its closest point are likely to place the aircraft either outside of the design envelope or over the gas venting station which is one of our design constraints. However, we have created Option 6 in the 04 North envelope which does intercept the M11 just west of Saffron Walden and runs close to parallel with this until the end of the envelope. This option remains within the envelope and avoids the gas venting station.

Q. Is it possible to have details of the proposed split between the various "relief" departure routes and the "main" routes?

This is one of the things we would like to hear your views on, and the reason we have included a section on Noise relief and respite question. At this stage, because there are other airports in the London area we need to understand where we can fly and where interactions with other airports may occur. Once we have this understanding, we will be in a position to create and consult upon relief or respite routes. At present, the options we are showing are indicative and we expect to work with other airports (many of whom are behind Stansted in this process) to identify and resolve these routes interactions in accordance with CAA requirement. The consultation on these will take place in Stage 3 of the process.

Q. Do the 22 and 04 South East options take into consideration the new Detling standard instrument departure (DET SID) which has replaced the Lydd (LYD SID)?

Yes, because the LYD SID has already been replaced under another project the design options described here are based upon the DET SID.

Q. During your constraints you mentioned considerations to City, Heathrow and Luton. Did you consider RAF Northolt?

Yes, we've considered all of the airports around us including RAF Northolt. However, we are conscious that many of these airports (including Northolt) have not yet progressed into stage 2 of the process which allows them to create route options. We are therefore carrying forward a full range of options at Stansted, some of which may involve interactions with other airports. As these other airports progress, we intend to identify and resolve these interactions through bilateral meetings.

Q. Can you confirm impact assessments have been carried out on VFR airspace for Andrewsfield/ Earls Colne airfields?

A. We have conducted an initial safety and hazard Identification exercise which includes Andrewsfield and Earls Colne and other general aviation airfields that are within our design area. This ensures that the operations from these airfields are considered in our designs. However, at this stage, because these are only options, it is not practical to conduct a full impact analysis. Once we have a more complete set of routes, our design principles and the CAP1616 process requires us to assess the impact of our routes on this airspace from both a safety and an airspace access perspective. In particular our design principle on Efficiency states we should seek to minimise the amount of controlled airspace we require.

Q: what is the reason for the flight planning restriction associated with the DET 1D RNAV SID? (Currently this SID is available only at night and upon request to ATC, not plannable for flights filed via LYD).

This departure route is restricted following a previous project that created new arrival routes in the London area, specifically to serve flights for London City. The restriction resulted in flights that previously used this SID to use the CLN SID during daytime. At night, because there is no traffic to London City, this restriction can be relaxed. Our proposed future airspace includes the concept of using this route during the daytime as one of the options for traffic routing to the south.