

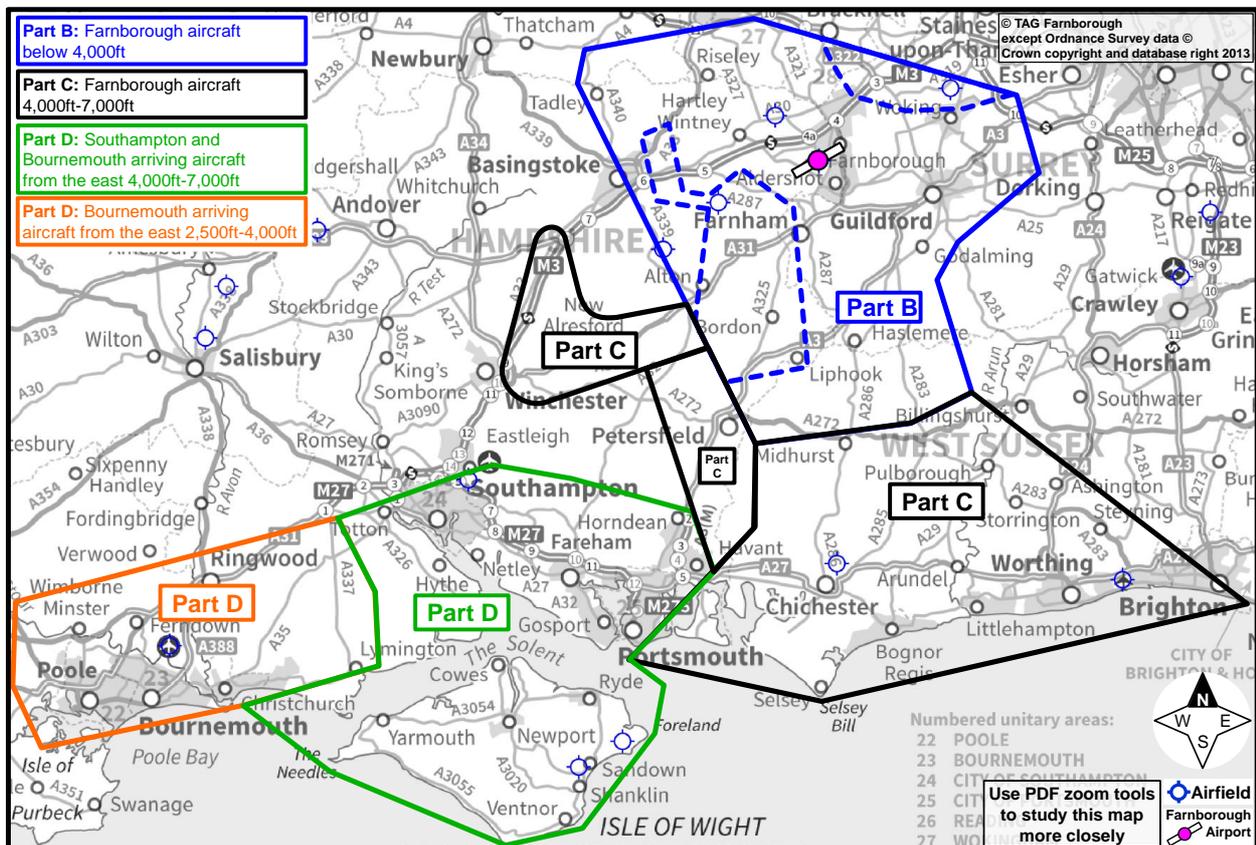


# Farnborough Airport

## Airspace Consultation

### Part D: Proposed changes between 2,500ft and 7,000ft in the vicinity of Southampton and Bournemouth

(Affecting Parts of Hampshire, the Isle of Wight and Dorset)



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# 1. Introduction to Part D

1.1. This part of the consultation material is slightly different from Parts B and C. It describes the proposed changes to the flight paths for Southampton and Bournemouth airport arrivals from the east. The regions which may be affected are shown enclosed by the solid green (4,000ft-7,000ft) and orange (2,500ft-3,999ft) outlined areas in Figure D1 below. All altitudes are above mean sea level<sup>1</sup>.

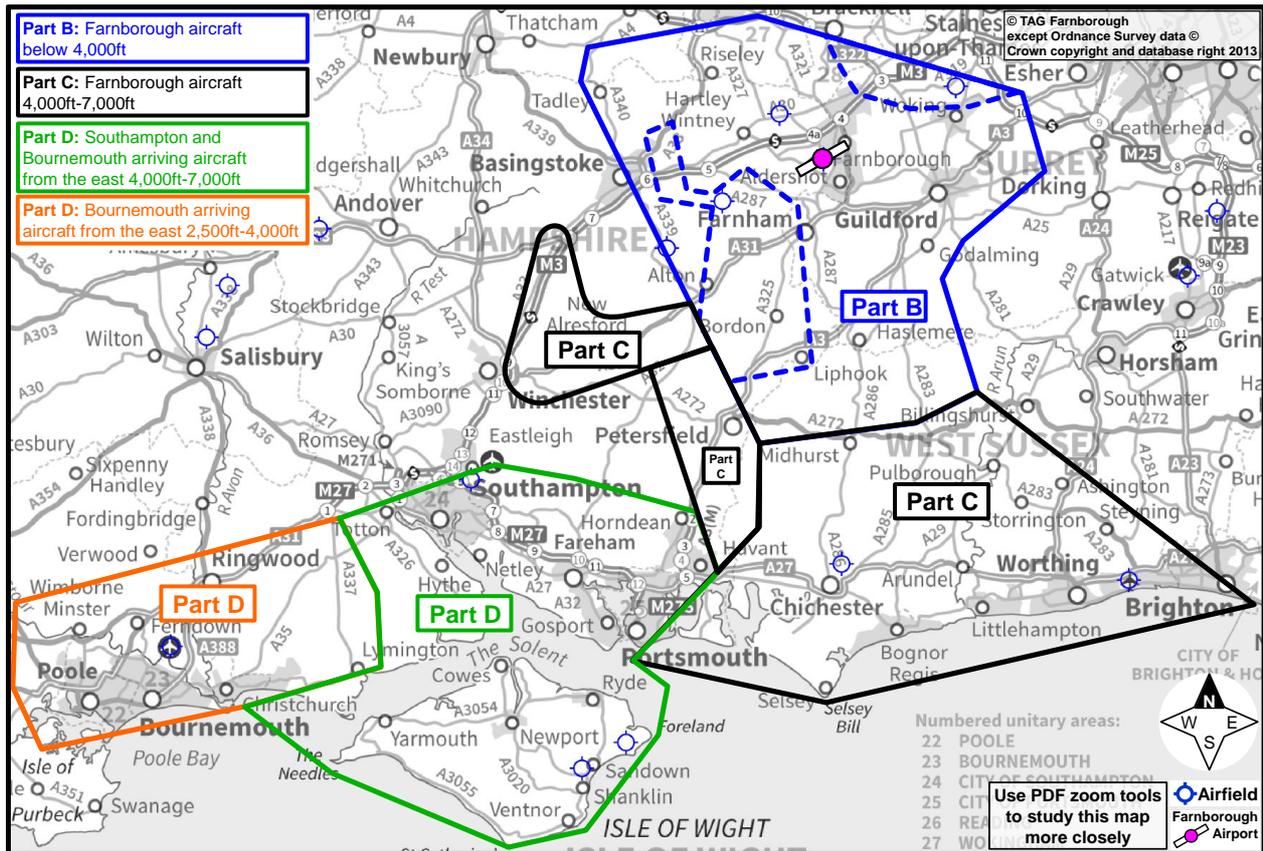


Figure D1: Consultation areas overview

- 1.2. Part D assumes that:
- a. You have read and understood the first half of Part A (this sets the context for the proposed changes);
  - b. You have identified that the geographic areas (shown outlined in green and orange in Figure D1) above are of interest to you, and
  - c. You understand that this consultation only covers the areas identified in Figure D1 where changes to air traffic flows are likely to occur as a result of this proposal. In this case, the only changes would be to one arrival route from the east.

<sup>1</sup> Altitudes of flights and airspace are given in feet above mean sea level (AMSL). Southampton Airport is at 44ft AMSL. The terrain within the areas shown in Figure D1 varies between sea level to about 900ft in elevation. To calculate the height above ground level (AGL) where you are, subtract your elevation from the altitudes in this document. For example, if you live on a 300ft hill (AMSL), and aircraft fly over you at an altitude of 5,400ft, that aircraft is 5,400 – 300 = 5,100ft AGL (above you).

- 1.3. As discussed in Part A, changes to airspace and routes in one place can make a difference to traffic flows elsewhere, sometimes quite a distance from the original change. The changes to Southampton and Bournemouth arrivals are necessary as part of this TAG Farnborough Airport proposal, because they share an arrival route down to around 7,000ft. Moving this route for Farnborough arrivals therefore also means moving it for these two airports. This route is primarily at higher altitudes over the sea where it will not have a local environmental impact, however, moving this route will affect the way arrivals from the east approach Southampton and Bournemouth airports at altitudes below 7,000ft, over the green and orange outlined areas shown in in Figure D1.
- 1.4. This part of the consultation document provides information to help understand the impact of the changes to Southampton and Bournemouth arrival flight paths within the green and orange outlined areas shown in Figure D1 (previous page) and Figure D2 (on Page D8).
- 1.5. The main focus of this document is on the impacts of moving this arrival route, which are covered in detail in sections 1-4 of this document. You may consider this information to determine the local impact on your area of interest.
- 1.6. Other air traffic flows, such as those serving Heathrow and Gatwick, also use the same airspace at higher altitudes throughout the region. Within the green and orange outlined areas of this proposal, we are not considering changes to other flows.
- 1.7. We need to gather feedback from you as a stakeholder, to enable us to understand how the change may impact you. Later in this part, we have included questions which are highlighted in a box like this. The easiest way to respond to the consultation is to answer these questions via the website:  
  
**[www.Consultation.TAGFarnboroughAirport.com](http://www.Consultation.TAGFarnboroughAirport.com)**
- 1.8. Care has been taken to make this consultation accessible to anyone who may wish to respond. The design and operation of airspace is, by its nature, a complex and technical issue. We aim to avoid technical jargon, but in order to help readers fully understand the rationale behind the changes being proposed we have, where appropriate and necessary, gone into some technical details and used relevant terminology. Any technical terms used are explained briefly, and summarised as a glossary in Appendix B.
- 1.9. In this part, we describe:
  - a. Today's airspace usage - a description of today's flight-paths including maps of where aircraft are generally seen;
  - b. The objectives and justification for the proposed changes – describing the route we are seeking to implement and its potential benefits and impacts; and
  - c. Local considerations for route positioning; describing potential local impacts. We ask for your feedback on any location that may require special consideration in the ongoing design process, and why you think we should consider it special. This will help us assess and balance the impacts of the design.

## How do I work out the change in impact within the green and orange outlined areas?

- 1.10. Later in this document, there are worked examples of how to assess the change of impact on a place. Use it for where you live or work, in order to decide how the change might affect you. These worked examples start in section 4 on Page D19.
- 1.11. Sections 2 and 3 provide background information to give an understanding of our objectives for this proposal.

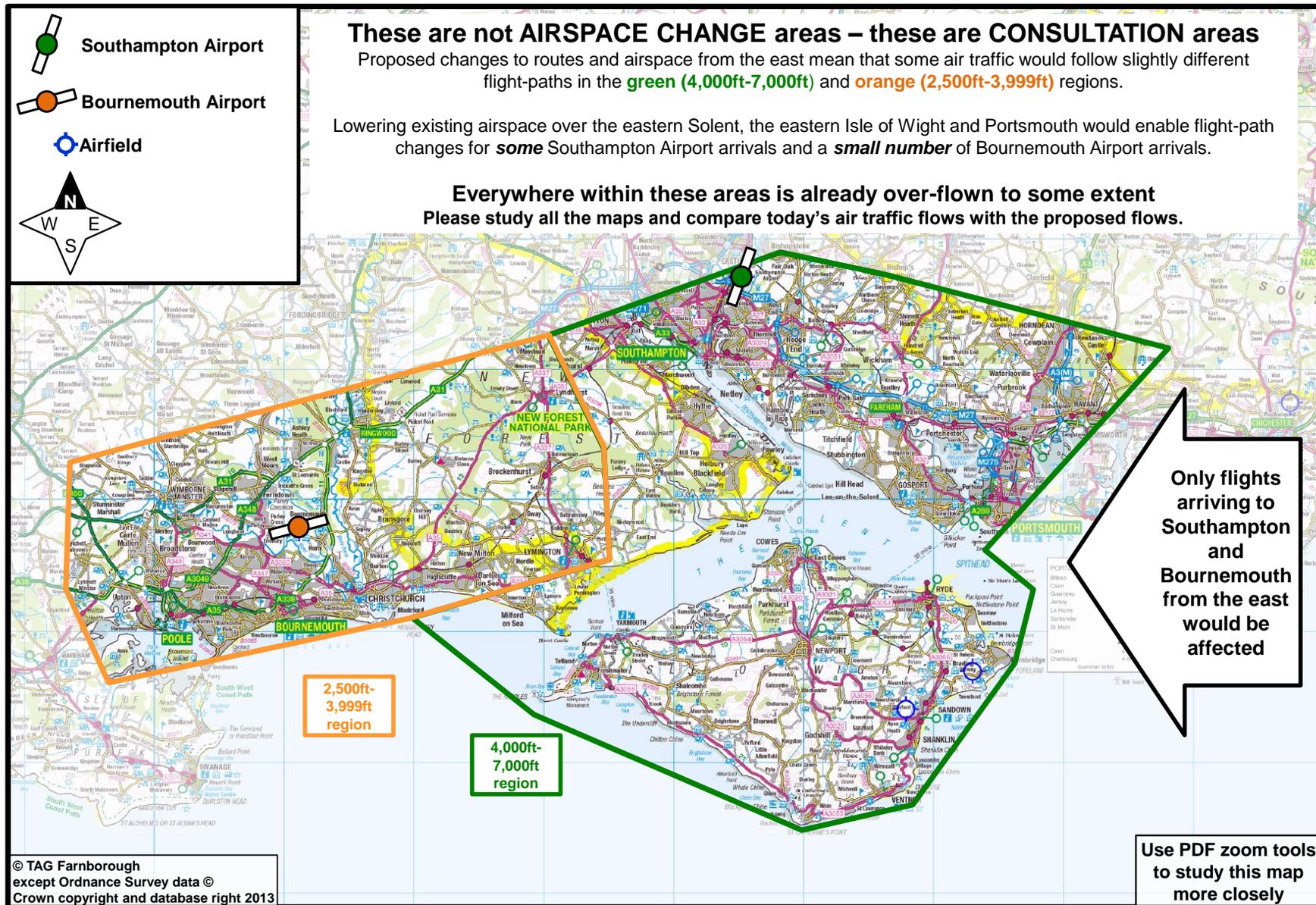


Figure D2: Consultation areas for Southampton and Bournemouth arrivals from the East (4,000-7,000ft and 2,500-3,999ft)

## 2. Today's airspace usage

- 2.1. The airspace near the south coast, which includes that used by Farnborough, Southampton and Bournemouth, is busy and complex. The area is also over-flown by aircraft originating from many different airports, as shown in Figure D3 (Page D30), which is a 'density plot' (see explanation below). This map shows all commercial air traffic in the region up to 20,000ft. Most notably there are several arrival and departure routes to and from Heathrow, Gatwick, Southampton and Bournemouth airports crossing the region. Figure D3 also contains outlines of National Parks and Areas of Outstanding Natural Beauty so you can see how often these places are over-flown by commercial aircraft today.

### Aircraft flight-path density plots

- 2.2. In order to illustrate where commercial aircraft currently fly, we have provided maps overlaid with aircraft flight-paths (Figures D3-D7). These are known as density plots, which are produced using radar data, and show how many aircraft over-flew a particular place. These maps start from Page D30.
- 2.3. The density plots show all flights for one month<sup>2</sup>, and hence give a good representation of where flights are most concentrated. A colour key explains the average number of flights per day over a particular place. Note that, because Southampton and Bournemouth have far fewer flights than Heathrow or Gatwick, the colour keys are different between density plots that show **all** airports and those that **only** show flights relating to these two airports.
- 2.4. We have filtered the radar data so we can show you different views:
  - a. Figure D3 shows all flights to/from all airports up to 20,000ft;
  - b. Figure D4 shows only flights arriving at Southampton and Bournemouth up to 20,000ft;
  - c. Figures D5-D7 show only flights arriving at Southampton and Bournemouth up to 7,000ft.
- 2.5. The density plots are provided to illustrate the spread of tracks today. The diagrams also have arrows which show the general direction of the traffic flows to aid your interpretation of these plots. The arrows are *illustrative* of the general flow directions.

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<sup>2</sup> Period chosen: September 2012. This month was chosen because it was a representative sample of aircraft types and destinations, and was outside the 2012 Olympics period. During the Olympics, special airspace was applied to the London region for parts of July and August - those special flight-paths did not represent the typical paths normally flown. This had consequential effects on Southampton and Bournemouth flight-paths, making them atypical.

## Runway directions

- 2.6. Southampton and Bournemouth Airports each have one long stretch of concrete and asphalt which aircraft use to take off and land. However, because it can be used in either direction, each length of concrete is officially classed as being **two** runways (Southampton has Runway 02 and Runway 20, and Bournemouth has Runway 08 and 26)<sup>3</sup>.
- 2.7. Airspace near the airport is used by departing aircraft as they climb after take-off, and by arriving aircraft as they descend to land. The wind direction on any given day (or hour) dictates which direction the runway is used for take-off and landing; for safety reasons the runway used is generally the one that has aircraft taking off and landing into the wind. This in turn influences the traffic patterns seen in the surrounding airspace.
- 2.8. If the wind is from the west or calm, Bournemouth aircraft take off and land using the westerly facing runway (Runway 26) and if the wind is from the east they take off and land using the easterly facing runway (Runway 08). Southampton is aligned more towards the northeast-southwest axis but the same principle applies.
- 2.9. The prevailing wind is generally from the west/southwest, this means that for both Southampton and Bournemouth the runway aligned in the westerly/south-westerly direction (the higher number) is used about 70% of the time.
- 2.10. Arriving aircraft initially come from the general direction of their departure airport via the air route network, but when they get close to the airport (and have descended sufficiently) they leave the air route and are directed towards the appropriate airport and the final approach for whichever runway is in use.
- 2.11. Initially these arriving aircraft for both airports are controlled from the national 'en-route' ATC centre, but all are transferred to the local airport controllers at Southampton. After this handover, Southampton arrivals are directed to final approach at whichever runway is in use at Southampton. Bournemouth arrivals are descended further by Southampton ATC before being handed over again to Bournemouth ATC. Bournemouth ATC then direct their aircraft to whichever of their runways is in use.
- 2.12. See Part A for further details on runway direction, usage, and designation.

## Overview of Southampton and Bournemouth arrivals See Figure D4 on Page D31

- 2.13. Figure D4 shows all Southampton and Bournemouth arrivals up to 20,000ft – departing aircraft are not shown. The vast majority of arrivals converge from the north and the south towards Southampton, with a smaller number arriving from the east. Only the arrivals from the east are relevant to this consultation.

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<sup>3</sup> The runway numbers '02', '20', '08' and '26' refer to the magnetic heading an aircraft would display on its compass, if it was aligned with the runway centreline. Southampton's runways are aligned approximately 020° and 200°, abbreviated to 02 and 20.

- a. For Southampton, **8.5%** of their arrivals come from the east.
- b. For Bournemouth, **15%** of their arrivals come from the east.

### **Today's Southampton arrivals from the east – see Figure D5 on Page D32 (No change to flights below 4,000ft)**

- 2.14. Southampton ATC currently manages arriving aircraft by manually directing each flight along reasonably consistent flight-paths towards the runway. When ATC manually directs a flight it is known as 'vectoring'. As the aircraft descend from about 7,000ft towards the runway, the radar controller takes command of the arrival and directs it along a safe and efficient flight-path taking account of the other aircraft in the vicinity. Some arrivals are given longer flight-paths, and some shorter, depending on the specific situation at the time. Equally, some aircraft are descended early, or late, for the same reason.
- 2.15. Because Southampton has controlled airspace (or 'CAS' – see Part A for an overview of CAS) that surround the airport at low altitudes, the arriving flight-paths are generally consistent and predictable, though there is some dispersal along those paths.
- 2.16. Southampton's flight-paths from the east, between 7,000ft and 4,000ft, currently follow two well-defined paths within the dashed outlined area in Figure D5.
- 2.17. Arrow 1 shows where arrivals from the east are handed over to Southampton ATC by the national 'en-route' ATC centre (the previous 'link' in the ATC chain).
- 2.18. Arrow 2 shows where Southampton ATC decides which runway to land them on.
- 2.19. If Runway 20 is in use (70% of the time, broad Arrow 2) the aircraft will continue heading northwest towards Arrow 3. When it reaches Arrow 3, it will be turned north and into the Runway 20 landing pattern, aiming at Arrow 20 to the north.
- 2.20. 6% of all Southampton arrivals head for Runway 20 via Arrow 3 (i.e. 8.5% arrive from the east, and 70% of these head to Runway 20).
- 2.21. If Runway 02 is in use (30% of the time, slim Arrow 2) the aircraft will be turned southwest towards Arrow 4. When it reaches Arrow 4, it will be turned south and into the Runway 02 landing pattern, aiming at Arrow 02 to the south, near Beaulieu.
- 2.22. 2.5% of Southampton arrivals head for Runway 02 via Arrow 4 (i.e. 8.5% arrive from the east, and 30% of these head to Runway 02).

### **Points to note about these Southampton arrivals from the east**

- 2.23. The tracks in Figure D5 start when the aircraft have descended below 7,000ft. Most are below 7,000ft by the time they near Havant.

- 2.24. Even though Figure D5 and this particular section of Part D are concerned with air traffic from 4,000ft to 7,000ft, we are showing you the flight-paths below 4,000ft so you can see how the flows work. Aircraft flight-paths outside the black dashed outline to the north, south or west are likely to be below 4,000ft, and to the west would be above 7,000ft.
- 2.25. Southampton arrivals from all other directions would not change. Figures D4 and D5 show these traffic flows also. No Southampton departure routes would be affected by this proposal, and so they are only shown in Figure D3 as part of the overall traffic flows.

### **Today's Bournemouth arrivals from the east in the vicinity of Southampton**

#### **See Figure D6 on Page D33 (No change to flights below 4,000ft)**

- 2.26. Because Southampton and Bournemouth both have CAS that adjoins, the Bournemouth flight-paths are generally consistent and predictable, though there is some dispersal along these flight-paths.
- 2.27. Bournemouth's flight-paths from the east, between 7,000ft and 4,000ft, currently follow two well-defined paths within the dashed outlined area in Figure D6 (and one occasional path described below).
- 2.28. Arrow 1 shows where arrivals from the east are handed over from the national 'en-route' ATC centre (the previous 'link' in the ATC chain) to local ATC at Southampton (see paragraph 2.10). About 15% of all Bournemouth arrivals route this way.
- 2.29. Arrow 2 shows where Southampton ATC decides which runway to land them on – this is agreed with Bournemouth ATC well in advance.
- 2.30. If Runway 26 is in use (70% of the time, broad Arrow 2) the aircraft will be turned southwest towards Arrow 3. When it reaches Arrow 3, it will continue in a near straight line onto a long final approach to Runway 26, joining the landing pattern, aiming at Arrow 26 near Brockenhurst.
- 2.31. 10.5% of Bournemouth arrivals head for Runway 26 via Arrow 3 (i.e. 15% arrive from the east, of which 70% head for Runway 26).
- 2.32. If Runway 08 is in use (30% of the time, slim Arrow 2) the aircraft will continue northwest towards Arrow 4. When it reaches Arrow 4, it will be turned southwest and into the Runway 08 landing pattern, aiming at Arrow 08 to the west, near Lyndhurst.
- 2.33. 4.5% of Bournemouth arrivals head for Runway 08 via Arrow 4 (i.e. 15% arrive from the east, of which 30% head for Runway 08).
- 2.34. Occasionally to achieve the correct spacing between aircraft, pilots are given alternative, less direct flight-paths; this happens relatively infrequently but contributes to the spread of flight paths shown in these Figures.

## Points to note about Bournemouth arrivals from the east in the Southampton vicinity

- 2.35. The tracks in Figure D6 start when the aircraft have descended below 7,000ft. Most are below 7,000ft by the time they near Havant.
- 2.36. Even though Figure D6 and this particular section of Part D are concerned with air traffic from 4,000ft to 7,000ft, we are showing you the flight-paths below 4,000ft so you can see how the flows work. Aircraft flight-paths to the west of the black dashed outline are likely to be below 4,000ft, and to the east above 7,000ft.
- 2.37. Bournemouth arrivals from all other directions would not change. Figure D6 shows these traffic flows also. No Bournemouth departure routes would be affected by this proposal, and so they are only shown in Figure D3 as part of the overall traffic flows.

## Today's Bournemouth arrivals from the east in the vicinity of Bournemouth

### See Figure D7 on Page D34 (No change to flights below 2,500ft)

- 2.38. Bournemouth manages their arriving aircraft by vectoring them in a similar way to paragraph 2.14.
- 2.39. Because Bournemouth has CAS that surrounds the airport, the Bournemouth flight-paths are generally consistent and predictable, though there is some dispersal along these flight-paths.
- 2.40. Bournemouth's flight-paths from the east, between 3,999ft and 2,500ft, currently follow two paths within the dashed outlined area in Figure D7 (the Runway 26 path is well defined, however because fewer aircraft arrive on Runway 08 its path is less clear – Figure D7 shows the corridor in which they typically arrive).
- 2.41. Arrow 08 and Arrow 26 show approximately where arrivals from the east are handed over to Bournemouth ATC by Southampton ATC (the previous 'link' in the ATC chain). Combining Arrows 08 and 26, about 15% of all Bournemouth arrivals route this way.
- 2.42. If Runway 26 is in use (70% of the time) the aircraft will arrive from Arrow 26 near Hythe and continue in a straight line towards Arrow 2. It will continue in a near straight line onto a long final approach to Runway 26, joining the landing pattern to the west of Arrow 2, aiming straight for the runway.
- 2.43. 10.5% of Bournemouth arrivals head for Runway 26 via Arrow 2 (i.e. 15% arrive from the east, of which 70% head for Runway 26).
- 2.44. If Runway 08 is in use (30% of the time) the aircraft will arrive from Arrow 08 between Marchwood and Totton, heading west towards Arrow 3 then Ringwood and Wimborne Minster, joining the landing pattern at Arrow 4 near Lytchett Matravers. When it reaches Arrow 4, it will be turned onto final approach for Runway 08, aiming straight for the runway to the east.

- 2.45. 4.5% of Bournemouth arrivals head for Runway 08 via Arrow 4 (i.e. 15% arrive from the east, of which 30% head for Runway 08).

### **Points to note about Bournemouth arrivals in this area between 2,500ft-3,999ft**

- 2.46. The tracks in Figure D7 start when the aircraft have descended below 4,000ft. Most are below 4,000ft soon after they enter the New Forest National Park, which is currently over-flown regularly.
- 2.47. Even though Figure D7 and this particular section of Part D are concerned with air traffic from 3,999ft to 2,500ft, we are showing you the flight-paths above and below so you can see how the flows work. Aircraft flight-paths to the east of the black dashed outline are likely to be at or above 4,000ft, and when the aircraft are turned towards final approach for either runway they are likely to descend below 2,500ft.
- 2.48. Bournemouth arrivals from all other directions would not change. Figure D7 shows these traffic flows also. No Bournemouth departure routes would be affected by this proposal, and so they are only shown in Figure D3 as part of the overall traffic flows.

### **Traffic to/from other airports, and General Aviation (GA)<sup>4</sup> activity**

- 2.49. Figure D3 shows that everywhere in the region is over-flown to some extent, and that Southampton and Bournemouth air traffic is a part of that overall picture. Figures D4 to D7 only depict Southampton and Bournemouth arrival traffic flows. Remember that the colour key for Figure D3 is different to that used in the other density plots because Southampton and Bournemouth are much less busy than Heathrow or Gatwick. Regardless of our proposal, the traffic to/from other airports will continue to be seen over-flying these areas (in particular Heathrow and Gatwick arrivals and departures) at similar altitudes to today, as would Southampton and Bournemouth traffic, other than the affected arrivals from the east.
- 2.50. This proposal may have an effect on where some GA aircraft fly. The change of impacts to people on the ground due to this is impossible to predict accurately. They are not required to speak with any ATS provider outside CAS, and may not show up on radar.
- 2.51. We know that changing flight-paths or airspace boundaries can be challenging to GA, and our intention is for as little disruption as possible by striking a fair balance (see Part E for details of aviation impacts).

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<sup>4</sup> General Aviation (GA) aircraft are usually private light aircraft, gliders, recreational aircraft etc. See Part A for more details.

### 3. Objectives and justification for proposed changes from 2,500ft-7,000ft

- 3.1. This section describes our objectives for changing the arrival route from the east to Southampton and Bournemouth Airports; it describes what we are trying to achieve and the generic benefits/impacts that would result. We welcome your feedback on these objectives. The effects on specific aviation users are discussed in Part E. Specific local considerations are discussed below in section 4.
- 3.2. This consultation is to develop airspace and flight-path solutions, assuming unchanged airport infrastructure. It is not associated with the work being undertaken by the Airports Commission. Any further proposals arising from any recommendations made by the Airports Commission would be subject to separate consultation at a later date.
- 3.3. The introduction of PBN, as recommended by the aviation industry's CAA-supported FAS, means the wider route system **must** undergo change (these terms are explained in Part A). This provides the opportunity to consider changes that will enable us to make best use of runways and to improve the management of noise impact wherever possible.
- 3.4. **Specific justifications:** We are seeking to optimise the route structure to bring benefits to the overall ATC system, in particular for the wider route network allowing improved Farnborough air traffic flows. Relocating the flows described in this part would enable that improvement (see Parts B and C), but would also improve the overall management of airspace in the entire region for the benefit of as many users as possible. We intend to do this by balancing the operational benefits of relocating the flight-paths with environmental impacts, considering GA activity areas as far as practicable. In particular we are proposing to change the manually vectored flight-paths that lead from the end of this relocated arrival route to the runways of both airports. This would improve the overall management of arrivals and keep the flight-paths consistent and predictable whilst retaining flexibility. Keeping the legacy arrangements was considered but would not enable the proposed wider airspace changes. The proposed airspace management would be more efficient for all users as well as these two airports.

#### Balancing the relocated flight-paths against the environmental impact and impact on GA activity

- 3.5. The proposed relocation of this arrival route from over the land to over the sea would enable the wider benefits of this proposed airspace change, as described in Parts B and C.

- 3.6. In addition, we estimate that, due to the relocation of this arrival route from over the land to over the sea, **464,000 fewer people**<sup>5</sup> would be over-flown by flight-paths between 7,000ft-4,000ft (the green area), and **11,000 fewer people** would be over-flown by flight-paths between 3,999ft-2,500ft (the orange area). This totals **475,000**.
- 3.7. Most of the affected flight-paths would fly over areas on the ground where aircraft already fly at similar altitudes, and often in similar directions. This is less likely to be noticeable to an observer on the ground than a new flight-path where aircraft were previously uncommon.

## Potential negative impacts

- 3.8. Avoiding over-flight of one area inevitably means flights over neighbouring ones instead. For example, avoiding over-flight of a town almost always means flying over surrounding countryside, which may be valued for its relative tranquillity<sup>6</sup>. This has been minimised by planning replacement flight-paths to be over the sea or over areas of reduced population as far as practicable. Whilst our proposal reduces the net number of people over-flown by these flight-paths (see paragraph 3.6 above), we recognise that changing the flight paths will mean new or increased impact over some areas.
- 3.9. Relocating the route means some aircraft would have to fly longer paths than today. Part A Section 10 describes how longer routes cause aircraft to use more fuel and produce more CO<sub>2</sub>.
- 3.10. Southampton and Bournemouth also provide services on request to all airspace users in the region outside CAS. Changes to airspace inevitably affect those other users, and we want to minimise the disruption to them as much as we can whilst fulfilling our objectives to provide a predictable airspace environment which can be managed safely and efficiently.
- 3.11. The majority of GA flying takes place below 4,000ft. There is GA activity from 4,000ft to 10,000ft and higher, but their frequency tends to decrease with altitude. In general there are relatively few GA flights above 10,000ft. It is unlikely that services to GA below 6,500ft would be significantly affected by this part of the proposal. Services to GA from 6,500ft and above would be affected in the vicinity of the eastern Isle of Wight. See Part E for more details.

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<sup>5</sup> Population data based on information supplied by CACI for 2012. This is a net figure based on a simple comparison of the populations within the areas covered by the current flight-paths vs the (smaller) areas covered by the proposed flight-paths. It is not intended to imply that all areas benefit from this proposal – some areas would, but others would not. It is intended to show that, as a net calculation, fewer people would be over-flown by the flight-paths described in this proposal than are currently over-flown.

<sup>6</sup> Route positioning is limited by aircraft manoeuvrability. Aircraft fly at high speeds; this limits how tightly, and how often, aircraft can turn in order for the route to be considered flyable and safe (this is governed by international design standards); hence avoiding one sensitive area can often mean over-flying another.

## Overall benefit

- 3.12. Our assessment of impacts is based on our interpretation of the Government's priorities described in Part A, which focusses on minimising the impact of aviation noise on densely populated areas, balanced with the need for a predictable and efficient flow of air traffic (operationally and with respect to fuel/CO<sub>2</sub>). Whilst the proposed change would have both positive and negative impacts, we believe that by reducing the net number of people over-flown and by avoiding disruption of GA areas as far as practicable, our design achieves the best balance. We therefore believe that the change is justified. In the questions below we ask about the principles behind our design decisions, and in Section 4 we are seeking local views in order to help determine whether our design can be improved further.

## Questions D1-D3

The following three questions are intended to gather your views regarding our **justification** for the proposed changes, and the **balances** we strike between route efficiency and environmental impacts. Please remember that these three questions are **not** asking about specific locations, only the **principles** behind why and how we designed the proposed routes.

Answering these questions does not prevent you from providing information on local sensitivities in answer to the questions in section 4; for example you may support our objective to improve airspace management in the region by enabling airspace and route changes to the east, but have strong views on areas that should be avoided. Equally you may have information that we have not considered that leads you to oppose the wider objective of improving overall airspace management, regardless of local issues. Please use the questions below to express your views on the general principles.

Question D4 (later) will ask about the impact on specific locations.

### Question D1 – Relocating one arrival route – Effect on flight-paths

This question is about **justification for change**.

In Section 3 above, we say that relocating this arrival route from the east would **not only** enable the wider airspace and route changes (described in Parts B and C), but would **also** improve the **overall** airspace management in the entire region for the benefit of as many airspace users as possible.

**To what extent do you agree with our justification:**

**Relocating the Bournemouth and Southampton arrival route, and the associated landing patterns, would enable changes to other routes and airspace – these changes are linked. Enabling these changes would improve the overall airspace management in the south.**

- 1 Strongly agree
- 2 Somewhat agree
- 3 No preference
- 4 Somewhat disagree
- 5 Strongly disagree

You are welcome to provide a statement to support your answer.

**Question D2 – Balance between local noise impact and CO<sub>2</sub> emissions – Low altitude flight-paths**

This question is about **balance**. In section 3 above we say that the proposed flight-paths at low altitudes would reduce the net number of people over-flown by these flight-paths. This would help noise management, in line with Government guidance that we are required to consider, as discussed in Part A.

The consequence of following this guidance is that some flight-paths are longer than today's typical flight-paths. This means that some aircraft need to use more fuel, leading to more CO<sub>2</sub> emissions. Other flight-paths are shorter, but they are not used as often.

It's not possible to reduce the local noise impact at low altitudes *and* make all aircraft fly shorter routes at the same time, so we prioritised reducing the overall low-altitude local noise impact at the expense of more fuel for some flights.

**To what extent do you agree with our balance:**

***Making some aircraft fly longer routes is justified, if it reduces the over-flight of populated areas at low altitudes (below 4,000ft).***

- 1 Strongly agree
- 2 Somewhat agree
- 3 No preference
- 4 Somewhat disagree
- 5 Strongly disagree

You are welcome to provide a statement to support your answer.

**Question D3 – Balance between route efficiency & environmental impacts**

This question is also about **balance**. In section 3 above we say that the relocated flight-paths would reduce the net number of people over-flown by these flight-paths, and that linking low altitude routes with the high altitude air route network needs flexibility, consistency and predictability.

The consequence is that some routes are longer than today's typical flight-paths. This means that some aircraft need to use more fuel, leading to more CO<sub>2</sub> emissions. It's not possible to reduce the local noise impact at low altitudes and make all our aircraft fly shorter routes at the same time, so we prioritised reducing low-altitude local noise impact at the expense of more fuel.

We then balanced the (diminished) environmental impacts at intermediate altitudes (4,000ft-7,000ft) with the need to fly as efficient a route as possible.

**To what extent do you agree with our balance:**

***At low altitudes, avoiding over-flying populated areas where possible is the highest priority. At these intermediate altitudes (4,000ft-7,000ft), some environmental impact is justified because the effect is much less than at low altitudes.***

- 1 Strongly agree
- 2 Somewhat agree
- 3 No preference
- 4 Somewhat disagree
- 5 Strongly disagree

You are welcome to provide a statement to support your answer.

## 4. Local considerations for route positioning

- 4.1. Figures D3-D7 show current air traffic flows, and Figures D8-D9 show the proposed air traffic flows. You can also view the maps interactively at

**[www.Consultation.TAGFarnboroughAirport.com](http://www.Consultation.TAGFarnboroughAirport.com)**

and use the postcode search function. The website will also allow you to zoom in on maps, and to easily switch between the current day traffic picture and the consultation swathes for the new routes.

### How to use the maps and data to assess potential effects

- 4.2. We have provided information to help answer the questions 'Would the change mean more or fewer over-flights? And if so, how many aircraft and what is the potential change in impact?' This information is in the form of maps and data that indicates potential noise and visual impacts across the consultation swathe. These swathes cover the most likely positioning of the relocated flight-paths described in this document (they do not cover existing flight-paths that would not change). The consultation swathes themselves are shown in Figures D8-D9, including data indicating the predicted numbers of flights affected. These Figures may be directly compared to the maps in Figures D3-D7 which show today's air traffic flows.
- 4.3. The information we have provided describes:
- a. The potential number of aircraft that would use that flight-path. A summary is provided on the data pages preceding those maps
  - b. The lowest, and the most likely, altitudes these aircraft would be at. This is shown by the shading on the maps themselves and is discussed in more detail in the paragraphs below; and
  - c. A measurement of the maximum noise impact aircraft over-flying at that height would generate at ground level (referred to as  $L_{max}$ ). This is also dependent on the aircraft types expected. A summary is provided on the data page preceding these maps.

### Swathes

- 4.4. The swathe maps have shaded areas to show where flight-paths would normally be as a consequence of this proposal. The areas enclosed by the dashed black lines denote the widest extent of the likely traffic spread, and the solid black lines show where traffic would normally be concentrated.

### Arrows

- 4.5. The swathe maps have arrows which indicate the general direction of the traffic flows, provided to help you interpret the maps. These arrows are illustrative.

## Altitude data

- 4.6. The altitude information presented on the maps shows a minimum altitude representing the lowest altitude we would normally expect an aircraft to be on that part of the flight-path. For example, the part of the 'minimum 5,000ft' altitude band nearest the runway on these maps is the area by which we would normally expect the lowest aircraft to be at 5,000ft, but further away in that shaded area they would typically be higher than 5,000ft.
- 4.7. Predicting typical altitudes for aircraft for a future airspace design is not an exact science. We have therefore erred on the side of caution with these typical values, and even they do not represent the true range of altitudes that aircraft may achieve.
- 4.8. Whilst this variation in altitudes would happen in reality, it is difficult to represent in a consultation document. We therefore suggest that, as a default, stakeholders should consider the potential impact of aircraft at the minimum altitudes shown on Figures D8 and D9.

## Tranquillity

- 4.9. Another factor that may determine the significance of a potential impact is tranquillity. CAA guidance for airspace change does not provide a method for assessing tranquillity. Any assessment will therefore be subjective and dependent on the specific location in question. The Government guidance (see Appendix A) specifically mentions AONBs and National Parks and so we have highlighted them in Figure D3 and the worked examples later in this section. You may wish to consider the potential effect on tranquillity when providing feedback.

## Assumptions

- 4.10. In order to ensure you do not underestimate the number of over-flights over a particular location, and to ensure we get feedback across the range of options within the swathes presented in this consultation, we ask you to make the following assumptions if your area of interest falls within the shaded areas bounded by the black lines on the maps:
  - a. Assume the flight-path may be positioned directly above you at the altitudes shown (so the maximum number of over-flights would apply to this area, as described in the data tables); and
  - b. Assume that all aircraft would consistently fly along the flight-path in question rather than being vectored elsewhere in the vicinity by ATC.
- 4.11. These assumptions, combined with the assumptions regarding minimum altitude described above, mean that the potential impact may be overestimated in this document. This is because the consultation swathes presented would have a degree of dispersal within the swathes due to manual vectoring, so not all the areas would be directly over-flown all the time by the route.

- 4.12. We believe that this is a prudent and favourable approach over one which risks you underestimating the potential effects. This is because it is better for us to analyse and filter the salient points from a wide consultation response, than to risk stakeholders not responding because they assume the impact is lower than it might in fact be. For this reason, please think about what feedback you would supply us *if* you were directly over-flown by one, some or all of the routes and provide your feedback by answering the questions we ask.

## General characteristics of proposed changes

- 4.13. The following paragraphs present the consultation swathes and describe the key factors that determine where they sit.
- 4.14. The traffic data shown on the pages preceding Figure D3 show a forecast of the average daily number of flights.

## Southampton's proposed arrival flight-paths from the east See Figure D8 on Page D35

- 4.15. Figure D8 shows the consultation swathes for the landing patterns to both runways. Figure D5 shows today's equivalent patterns. You may prefer to view the website where you can switch between these maps on screen.
- 4.16. Comparing Figure D5 with Figure D8 shows how our proposal would change the Southampton arrivals - the entire arrival route would move south, approaching from over the sea (Arrow 1). From there, the flow would start to split into the landing patterns for the relevant runway.
- 4.17. In Figure D8, Arrow 1 shows where the Southampton controller *may* decide to route some of the arriving aircraft if Runway 02 is in use. One option is for them to follow the slim arrow towards the point labelled 7 then over the southern Isle of Wight to Arrow 8. This would mostly be at higher altitudes above 7,000ft. From Arrow 8 they would turn straight to final approach for Runway 02 over Beaulieu as per today. This would happen about 35% of the time Runway 02 is in use, which itself is only 30% of the time.

Less than 1% of all Southampton arrivals would be affected by this route change (i.e. 8.5% arrive from the east, of which 30% head for Runway 02, of which 35% would fly over the southern Isle of Wight).

- 4.18. Most Runway 02 arrivals (65%) would route from Arrow 1 to Arrow 2 then Arrows 5 and 6. This would take them mainly over water along the Solent, avoiding populated areas as far as practicable.
- 1.7% of all Southampton arrivals would be affected by this route change (i.e. 8.5% arrive from the east, of which 30% head for Runway 02, of which 65% would fly along the Solent).
- 4.19. For arrivals to Runway 20 (in use 70% of the time), the controller also has a choice to make, depending on the air traffic situation at the time.

- 4.20. About half the time, Runway 20 arrivals would route along the Solent via Arrows 1 then 2 and then 5, at which point they would turn north towards Arrow 4, joining the remaining (unchanged) landing pattern at Arrow 20.
- 4.21. The other half of the time, Runway 20 arrivals would cut the corner over southern Portsmouth and Gosport via Arrows 1-2-3-4, again joining the unchanged landing pattern beyond Arrow 4.

About 3% of all Southampton arrivals would follow the flight-path via the Solent (Arrow 5) and likewise 3% would follow the more direct route via Arrow 3 (i.e. 8.5% arrive from the east, of which 70% head for Runway 20, of which 50% would be directed along each path depending on the situation).

- 4.22. Table D1 on Page D27 shows the total affected Southampton flights. See Tables D2-D5 for how these proportions relate to the total numbers of flights involved.
- 4.23. Remember that only the yellow, pink and blue shaded areas could be up to 7,000ft – the grey areas would be 7,000ft and above.
- 4.24. The Needles, Beaulieu, Hythe, Fawley, Hamble, Hedge End, Botley and Lower Upham are already overflown regularly by arriving flight-paths from the south (see Figures D3 and D4). These flows are not changing due to this proposal.

### **Bournemouth's proposed arrival flight-paths from the east See Figure D9 on Page D36**

- 4.25. Figure D9 shows the consultation swathes for the landing pattern to both runways. Figures D6 (4,000ft-7,000ft) and D7 (2,500ft-3,999ft) show today's equivalent patterns. You may prefer to view the website where you can switch between these maps on screen.
- 4.26. Current arrival flight-paths are discussed from paragraph 2.28 on Page D12 and from paragraph 2.41 on Page D13.
- 4.27. Comparing Figure D6 with Figure D9 the entire arrival route, containing about 15% of Bournemouth arrivals, would move south, starting over the sea but overflying part of the Isle of Wight (Figure D9 Arrow 1). From the Needles (Arrow 2), the flow would split into the landing patterns for the relevant runway. This means that the grey and blue shaded areas in Figure D9 would get the same number of aircraft overhead regardless of the runway in use at Bournemouth, typically 6,000ft (blue) to 7,000ft or above (grey). (From Table D6, 2015 forecast indicates that on average about 2.5 flights per day would use this route.)
- 4.28. If Runway 08 was in use (30% of the time), arrivals would route from Arrow 2 to Arrow 4 then join the (unchanged) final approach at Arrow 08 over Canford Heath.

(From Table D7, the 2015 forecast indicates that on average fewer than 1 flight per day would route this way.)

- 4.29. If Runway 26 was in use (70% of the time), arrivals would route from Arrow 2 to Arrow 3 via Milford on Sea and Lymington, then join the (unchanged) final approach at Arrow 26 over Thorney Hill.

(From Table D8, the 2015 forecast indicates that on average fewer than 2 flights per day would route this way.)

- 4.30. Arrows 1-5-6-26 show a potential alternate route to Runway 26. This follows the Solent and makes landfall south of Calshot, towards Blackfield and Beaulieu. This flight-path may be infrequently used by a small number of arrivals to Runway 26. These places are, and would continue to be, over-flown by other flight-paths.
- 4.31. Remember that the grey and blue areas would be over-flown more often, but at higher altitudes (at least 6,000ft in the blue shaded area, typically 7,000ft or above in the grey shaded area). The yellow and pink shaded areas would be at least 4,000ft-5,000ft respectively. Aircraft are only likely to descend below 4,000ft in the green areas, before reaching final approach in the red areas, probably between 3,000ft and 2,500ft.
- 4.32. The Milford-Lymington area and the Bournemouth-Poole area are both already overflown regularly by arriving flight-paths from the south (from Figures D3 and D4). These flows are not changing due to this proposal. Please consider whether the small number of aircraft affected by this proposal would be noticeable amongst these existing traffic flows.
- 4.33. The Isle of Wight is already regularly overflown below 20,000ft by at least three major airways (see the red, yellow and blue bands in Figure D3, aligned northeast to southwest and vice versa). The change proposed in this part of the consultation would slightly increase the over-flight of parts of the island, at or above 6,000ft but generally above 7,000ft, with two flows running east to west - and one of those flows would probably be used infrequently. Please consider whether the small number of aircraft affected by this proposal would be noticeable amongst these existing traffic flows.

## Current and forecast air traffic information for Figures D8-D9

- 4.34. Daily numbers given in the data tables are *averages*<sup>7</sup>. Like any airport, there are busy periods where flights per day are greater than the average, likewise there are quiet periods. These peaks and troughs are based on too many factors to be predictable, but the summer season is usually busier than winter. This would not change due to the proposal.
- 4.35. Southampton's air traffic movements are forecast to remain the same in 2015 as they were in 2012, and to increase by 10.8% by 2019.

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<sup>7</sup> These averages were calculated based on both airports being open 364 days per year (excluding December 25<sup>th</sup>).

- 4.36. Bournemouth Airport were not able to supply forecast figures for 2015 and 2019. However, for the purposes of this consultation, it was agreed that the following forecast could be used to provide calculations so that current and future potential impacts could be compared:
- a. 2015's movements could be considered to remain the same as 2012's
  - b. 2019's movements could be considered as 10% greater than 2015's

## What is the impact now, and what would it be in the future? Worked examples

- 4.37. The following paragraphs explain how to work out the changes in impact for real places, as an example. Follow these examples, use the maps to find where you live or work, and run through the same method for your area of interest.
- 4.38. We have worked three examples below, using the towns of Havant and Gosport. To follow the examples we suggest you have the maps nearby, or have the consultation website open with the map pages on display.
- 4.39. We describe what impacts these places are exposed to now, what they would be exposed to in the future if this proposal was not implemented, and what they would be exposed to in the future if this proposal was implemented.
- 4.40. To describe the impact today, we used radar data and aircraft numbers from 2012. In 2019, if the proposal was not implemented, aircraft would continue to follow the same flight-paths as today.
- 4.41. In these examples, we compare today's movement numbers with the most likely forecast movement numbers for 2019.
- 4.42. Please remember the assumptions in paragraphs 4.10-4.12.
- 4.43. The relevant Figures (D3-D9) are on Pages D30-D36. The relevant Tables (D1-D11) are on Pages D27-D29.
- 4.44. We use:
- |               |  |
|---------------|--|
|               | In order to:   |
| Figures D3-D7 | See where the place is, in relation to current flight-paths  |
| Figures D8-D9 | See where the place is, in relation to proposed flight-paths |
| Tables D1-D8  | Find out how many flights affect the place                   |
| Tables D9-D11 | Understand the noise impacts involved for that place.        |

## Havant

- 4.45. From Figure D3, Havant is currently over-flown by commercial air traffic to and from many airports, including to/from Heathrow and Gatwick. This density plot shows Havant covered by blue/green (up to 18 flights per day) with a confluence of (red) routes passing a short distance to the southeast. This means that, on average Havant is over-flown by up to 18 flights per day by aircraft at altitudes below 20,000ft, with a major route in the vicinity. From Figure D3, Havant is not within a National Park or AONB, but it is near the boundaries of both the South Downs and Chichester Harbour. The key for Figure D3 is different to the keys of the other density plots, because it includes the busier Heathrow and Gatwick flows.
- 4.46. Figure D4 (Southampton and Bournemouth air traffic only, up to 20,000ft) shows that Havant is currently overflown by up to 1 Southampton/Bournemouth flight per day (grey area), with a route (blue/green band) representing up to 5 flights per day passing east to west slightly north of the town.
- 4.47. Figures D5 and D6 show the patterns flown by arrivals to Southampton and Bournemouth respectively, up to 7,000ft. These show that the arrival route to Southampton and Bournemouth from the east passes just to the north of Havant, but the average number of flights is up to 3 per day (blue colour)..

## Havant today, and if the proposal was not implemented

- 4.48. Figures D5 and D6 show the vicinity of Havant is currently over-flown by all Southampton and Bournemouth arrivals from the east.
- 4.49. Adding Table D1 (all relevant Southampton arrivals) to Table D6 (all relevant Bournemouth arrivals) shows that about  $1,783 + 922 = 2,705$  follow this route – about 7 per day.
- 4.50. If the proposal was not implemented, in 2019 Havant would still be over-flown by Southampton and Bournemouth arrivals from the east.
- 4.51. In the 2019 column, adding Table D1 to Table D6 shows that about  $1,975 + 1,014 = 2,989$  would follow this route in that year – about 8 per day.
- 4.52. Aircraft to/from other airports would also continue to over-fly Havant.

## Havant under this proposal

- 4.53. Figure D8 and D9 show that, if the proposal is implemented, these Southampton and Bournemouth arrivals from the east would be positioned to the south (over the sea) and hence would not over-fly Havant.

## Gosport

- 4.54. From Figure D3, Gosport is currently over-flown by commercial air traffic to and from many airports, including to/from Heathrow and Gatwick. This density plot shows the Gosport vicinity covered by blue/green (up to 18 flights per day) with one distinct route coloured green/yellow (up to 24 flights per day) passing over Portsmouth Harbour towards Alverstoke. These flights are higher altitude and not related to Southampton and Bournemouth flights, since they do not show up in Figures D4, D5 and D6. This means that Gosport is over-flown by more than 24 flights per day (by aircraft at altitudes up to 20,000ft). Figure D3 also shows Gosport is not within a National Park or AONB.
- 4.55. Figure D4 (Southampton and Bournemouth arrivals only, up to 20,000ft) shows that Gosport is not currently over-flown by these flights.
- 4.56. Figures D5 and D6 show the patterns utilised by arrivals to Southampton and Bournemouth respectively, up to 7,000ft. They show that Gosport is not currently over-flown by these flights.

## Gosport today, and if the proposal was not implemented

- 4.57. Figures D5 and D6 show that Gosport is not currently over-flown by Southampton and Bournemouth arrivals from the east.
- 4.58. If the proposal was not implemented, in 2019 Gosport would still probably not be over-flown by Southampton and Bournemouth arrivals from the east. Aircraft to/from other airports would however continue to over-fly Gosport.

## Gosport under this proposal

- 4.59. Figure D8 shows that, if the proposal is implemented, the Southampton arrival routes from the east would be positioned more to the south (Arrow 2) and hence would join the new pattern from a starting place more likely to over-fly Gosport.
- 4.60. From Arrow 2, Southampton arrivals could route to Arrow 5 via the Solent. If Runway 20 was in use, arrivals would split around Arrow 2 and some would route to Arrow 3 via Gosport. Those that head towards Arrow 5 are less likely to over-fly Gosport directly, so the most likely impact would come from Arrow 3 (Table D5).
- 4.61. From the 2019 column in Table D5, the most likely number to fly in the vicinity of Gosport is 691, on average fewer than 2 flights per day. These would be in the blue shaded area, between 7,000ft and 6,000ft.
- 4.62. From Figure D9, Bournemouth arrivals would be unlikely to over-fly Gosport under this proposal.

## Noise impacts

- 4.63. Comparing the noise impacts for arrivals (Table D9) against Table D11 (which gives examples of everyday noises) allows you to understand the approximate scale of the noise impact.

## End of worked examples

- 4.64. Completing this exercise for yourself will allow you to form your own opinion on the change in impact this proposal could have on where you live or work.
- 4.65. Remember that, if this proposal is **not** implemented, the forecast 2019 traffic numbers would **still** apply to today's flight-paths.

## Southampton Arrivals Aircraft Numbers See Figures D5 (Page D32) and D8 (Page D35)

Flights	2012 Typical	2015 Most Likely	2019 Most Likely
Annual	1,783	1,783	1,975
Average Per Day	4.9	4.9	5.4

**Table D1: Total arrivals from the east to Southampton Airport (All traffic in Figure D8)**

Flights	2012 Typical	2015 Most Likely	2019 Most Likely
Annual	187	187	207
Average Per Day	0.51	0.51	0.57

**Table D2: Arrivals from the east to Southampton Runway 02 via the Isle of Wight (Figure D8 Arrows 1-7-8-02)**

Flights	2012 Typical	2015 Most Likely	2019 Most Likely
Annual	348	348	385
Average Per Day	0.96	0.96	1.06

**Table D3: Arrivals from the east to Southampton Runway 02 via the Solent (Figure D8 Arrows 1-2-5-6-02)**

Flights	2012 Typical	2015 Most Likely	2019 Most Likely
Annual	624	624	691
Average Per Day	1.71	1.71	1.90

**Table D4: Arrivals from the east to Southampton Runway 20 via the Solent (Figure D8 Arrows 1-2-5-4-20)**

Flights	2012 Typical	2015 Most Likely	2019 Most Likely
Annual	624	624	691
Average Per Day	1.71	1.71	1.90

**Table D5: Arrivals from the east to Southampton Runway 20 via Gosport (Figure D8 Arrows 1-2-3-4-20)**

**Bournemouth Arrivals Aircraft Numbers**

See Figures D6 (Page D33), D7 (Page D34) and D9 (Page D36)

Flights	2012 Typical	2015 Most Likely	2019 Most Likely
Annual	922	922	1,014
Average Per Day	2.5	2.5	2.8

**Table D6: Total arrivals from the east to Bournemouth Airport (All traffic in Figure D9)**

Flights	2012 Typical	2015 Most Likely	2019 Most Likely
Annual	277	277	304
Average Per Day	0.76	0.76	0.84

**Table D7: Arrivals from the east to Bournemouth Runway 08 (Figure D9 Arrows 1-2-4-08)**

Flights	2012 Typical	2015 Most Likely	2019 Most Likely
Annual	645	645	710
Average Per Day	1.77	1.77	1.95

**Table D8: Arrivals from the east to Bournemouth Runway 26 (Figure D8 Arrows 1-2-3-26)**

The potential arrival route 1-5-6-26 would probably be infrequently used, so no data is presented for that route.

## Arrival Noise Information - Southampton

Height above ground (ft)	Peak noise impact of most common <sup>8</sup> aircraft type Medium Turboprop e.g. Bombardier DH8 (77%)
4,000ft-5,000ft	62-64 dBA
5,000ft-6,000ft	61-62 dBA
6,000ft-7,000ft	59-61 dBA
Above 7,000ft	59 dBA or below

**Table D9: Arrivals - Typical noise level (L<sub>max</sub> dBA) at various heights for the most common<sup>8</sup> aircraft type**

## Arrival Noise Information - Bournemouth

Height above ground (ft)	Peak noise impact of most common aircraft type Medium twin jet e.g. Airbus A320/ Boeing 737 (50%)	Peak noise impact of noisiest aircraft type Boeing 747 (1%)
2,000ft-3,000ft	64-69 dBA	71-77 dBA
3,000ft-4,000ft	61-64 dBA	67-71 dBA
4,000ft-5,000ft	59-61 dBA	64-67 dBA
5,000ft-6,000ft	57-59 dBA	61-64 dBA
6,000ft-7,000ft	56-57 dBA	59-61 dBA
Above 7,000ft	56 dBA or below	59 dBA or below

**Table D10: Arrivals - Typical noise level (L<sub>max</sub> dBA) at various heights for the most common and noisiest aircraft types**

The highest L<sub>max</sub> dBA would be for the aircraft at the lowest altitude in each band.

## Table of Equivalent Sounds

Example Sound	Noise level (dBA)
Chainsaw, 1m distance	110
Disco, 1m from speaker	100
Diesel truck pass-by, 10m away	90
Kerbside of busy road, 5m away	80
Vacuum cleaner, 1m distance	70
Conversational speech, 1m away	60
Quiet office	50
Room in quiet suburban area	40

**Table D11: Table of noise levels (L<sub>max</sub> dBA) for equivalent sounds<sup>9</sup>**

<sup>8</sup> This is also the noisiest type to operate at Southampton. The jet aircraft that operate here are slightly quieter

<sup>9</sup> Based substantially on [www.sengpielaudio.com/TableOfSoundPressureLevels.htm](http://www.sengpielaudio.com/TableOfSoundPressureLevels.htm)

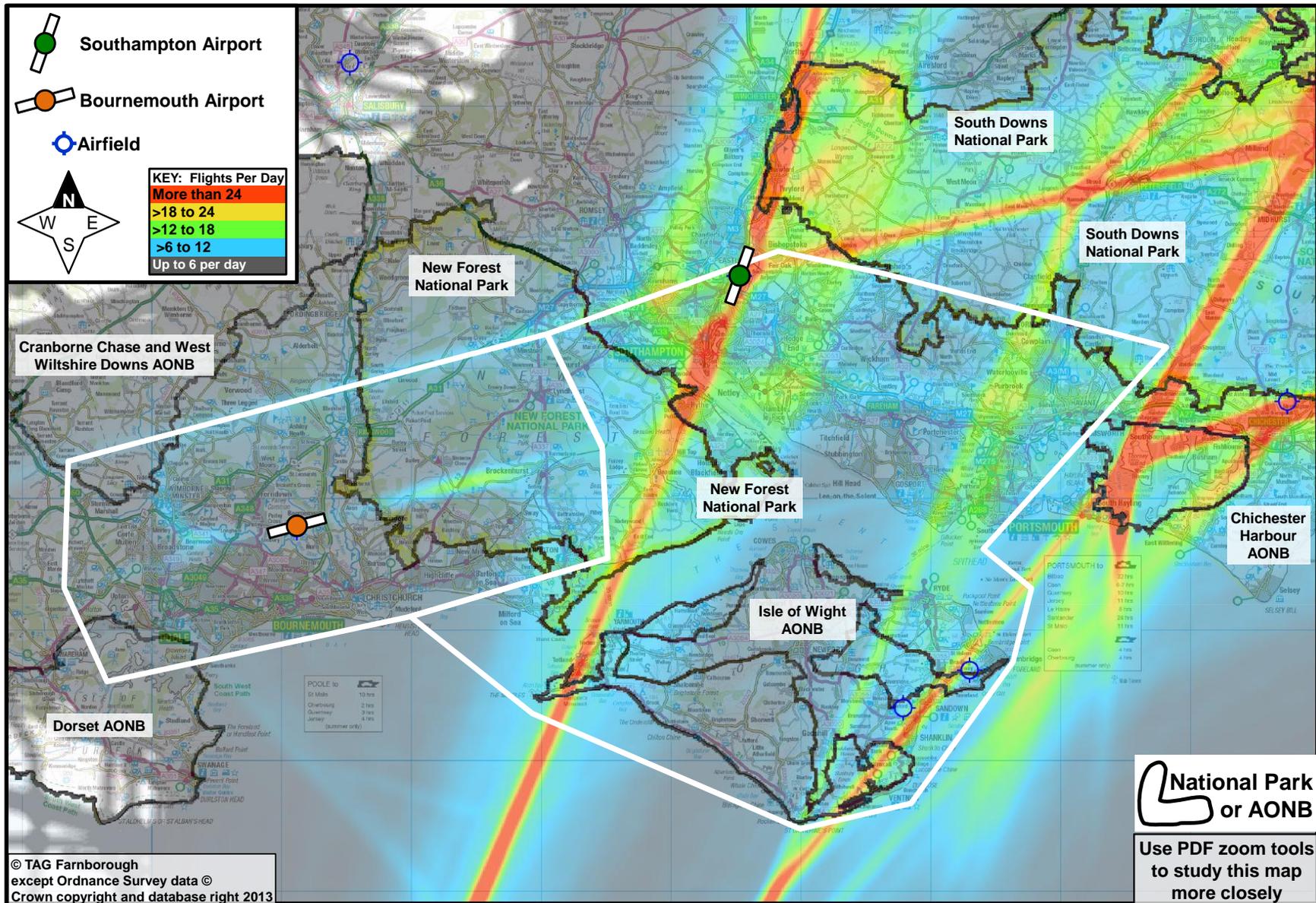


Figure D3: All commercial flights (up to 20,000ft) density plot with National Parks and AONBs

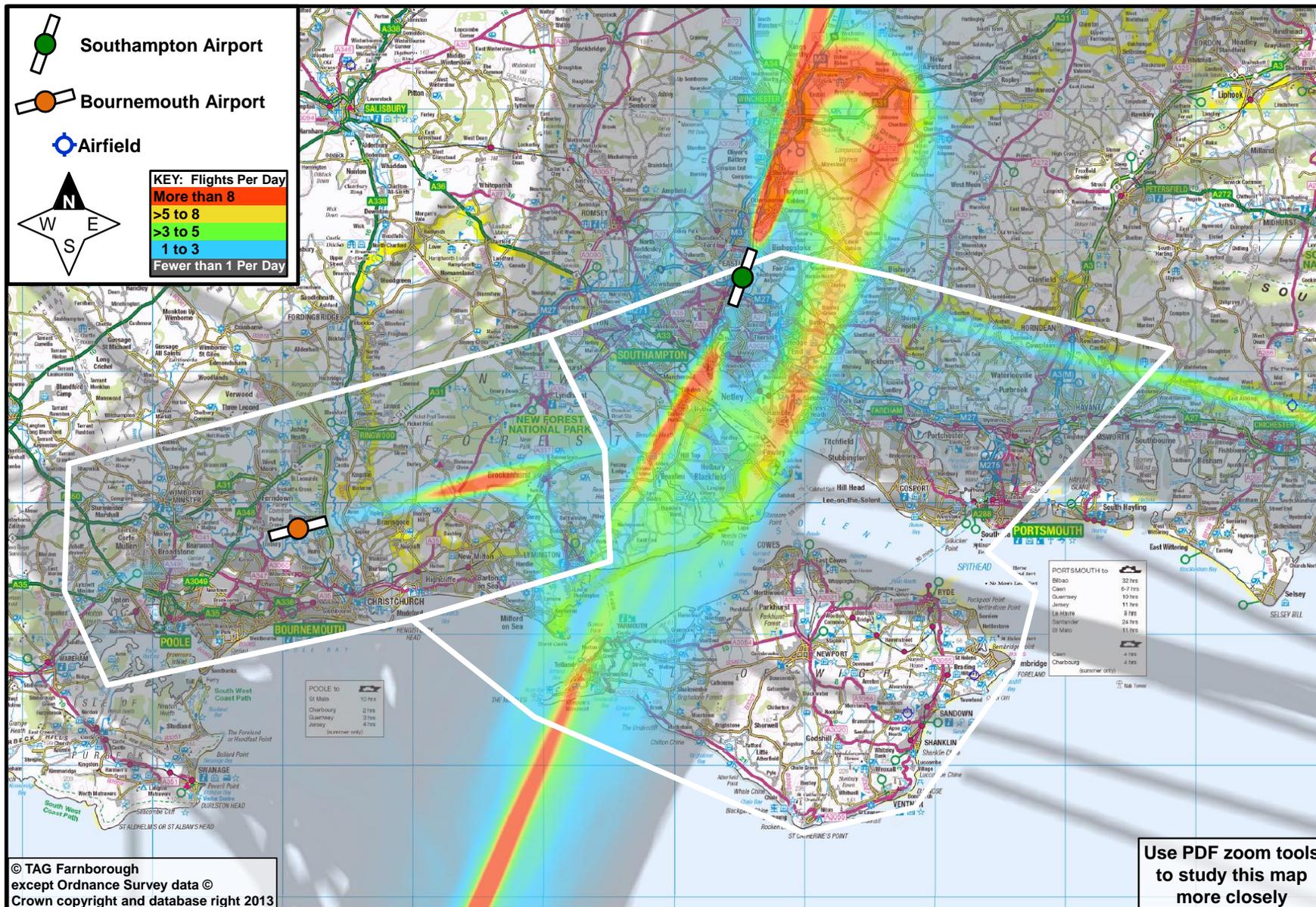


Figure D4: Southampton and Bournemouth arrivals (up to 20,000ft) density plot

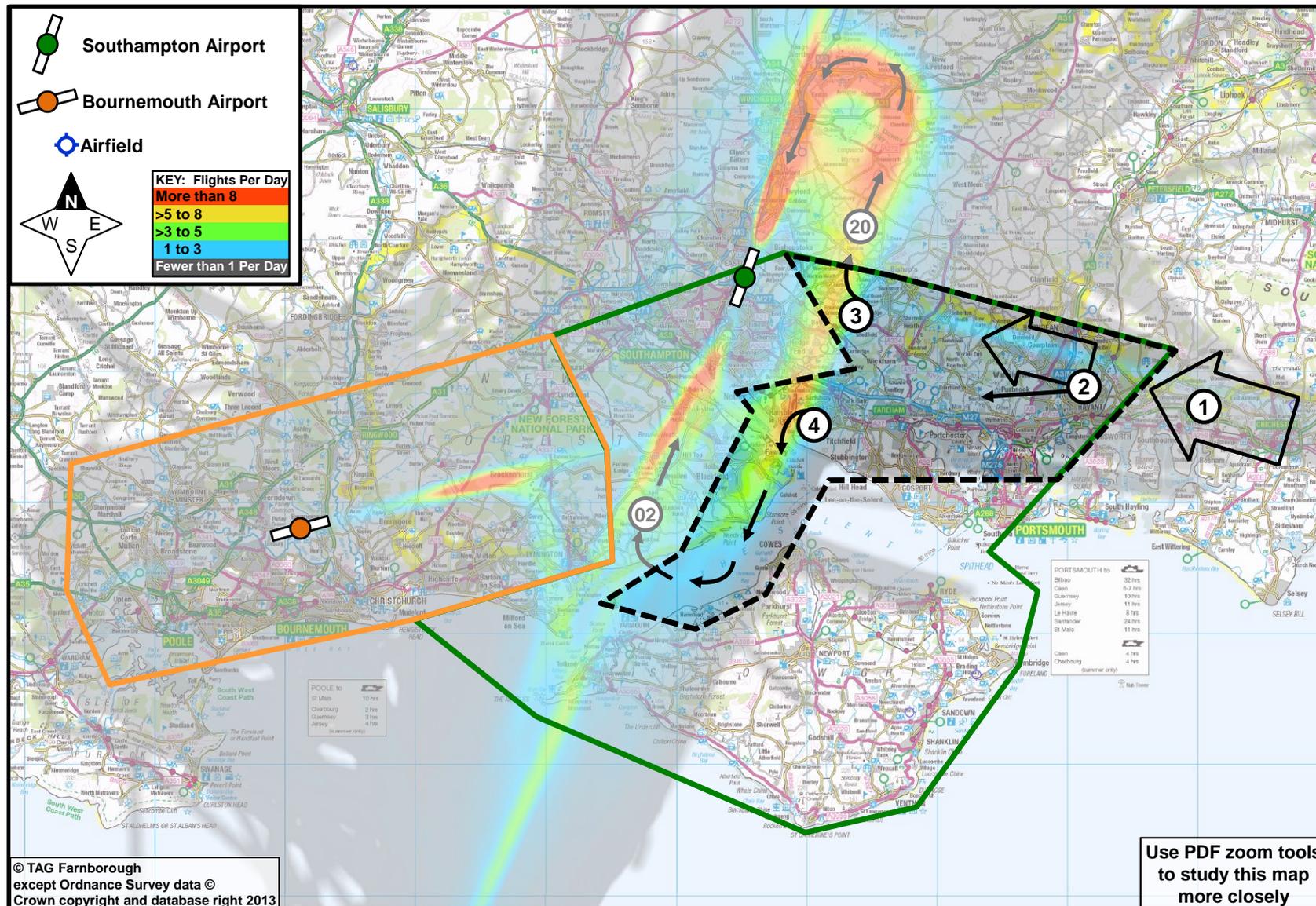


Figure D5: Arrows/dotted lines show typical SOUTHAMPTON arrival flows from the east to both runways, 4,000ft-7,000ft (Radar data shows all Southampton and Bournemouth air traffic up to 7,000ft)

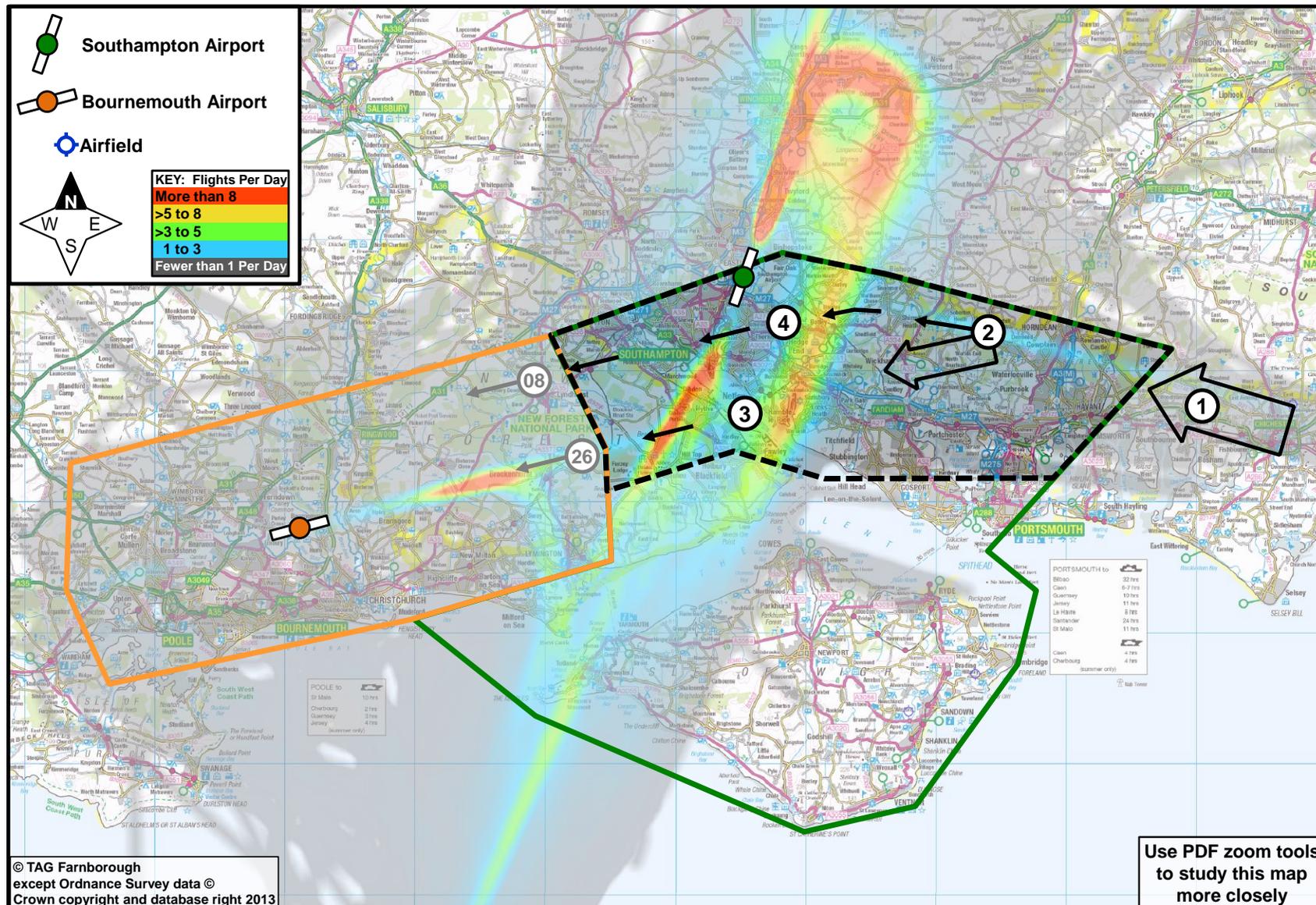


Figure D6: Arrows/dotted lines show typical BOURNEMOUTH arrival flows from the east to both runways, 4,000ft-7,000ft (Radar data shows all Southampton and Bournemouth air traffic up to 7,000ft)

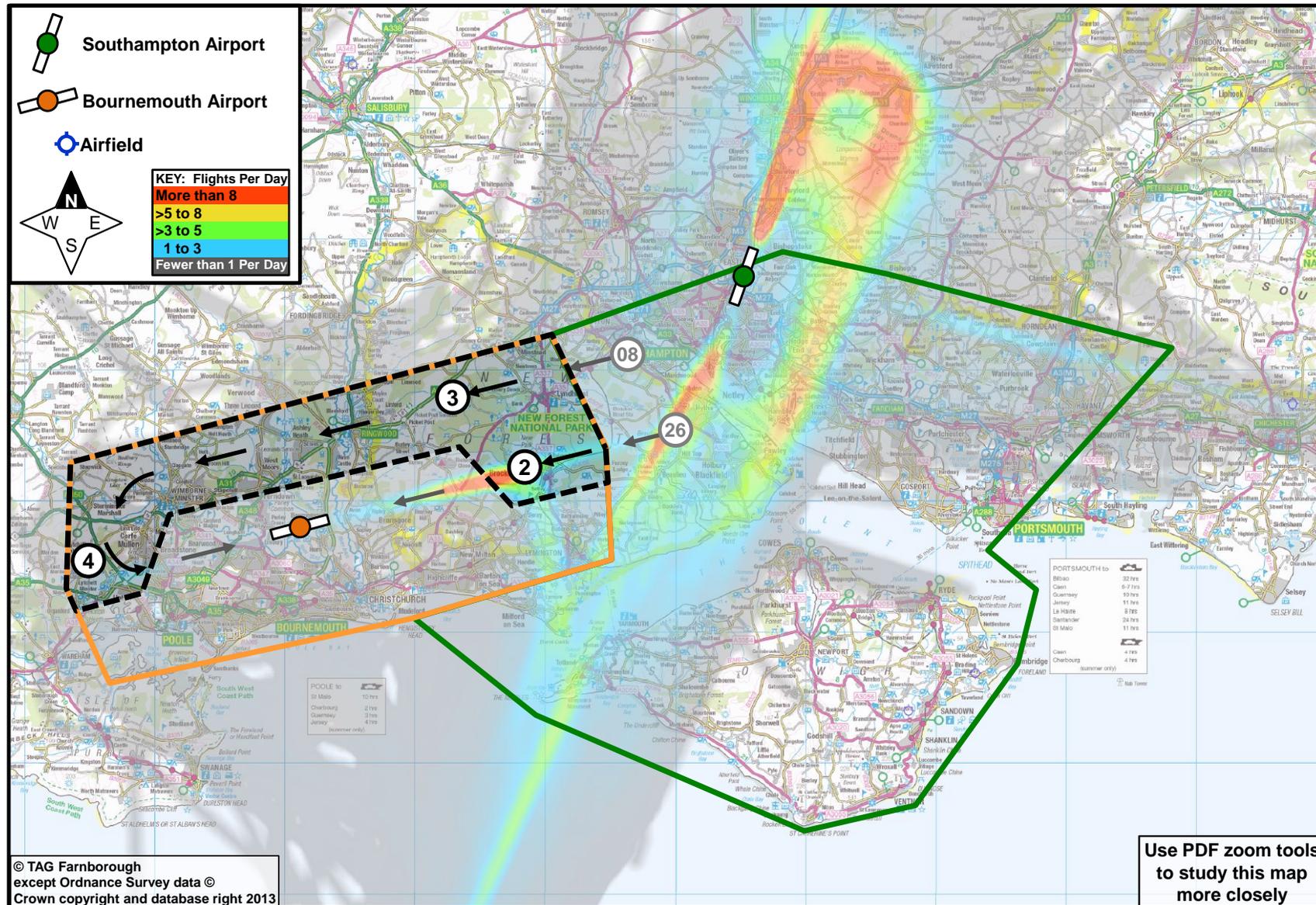


Figure D7: Arrows/dotted lines show typical BOURNEMOUTH arrival flows from the east to both runways, below 4,000ft (Radar data shows all Southampton and Bournemouth air traffic up to 7,000ft)

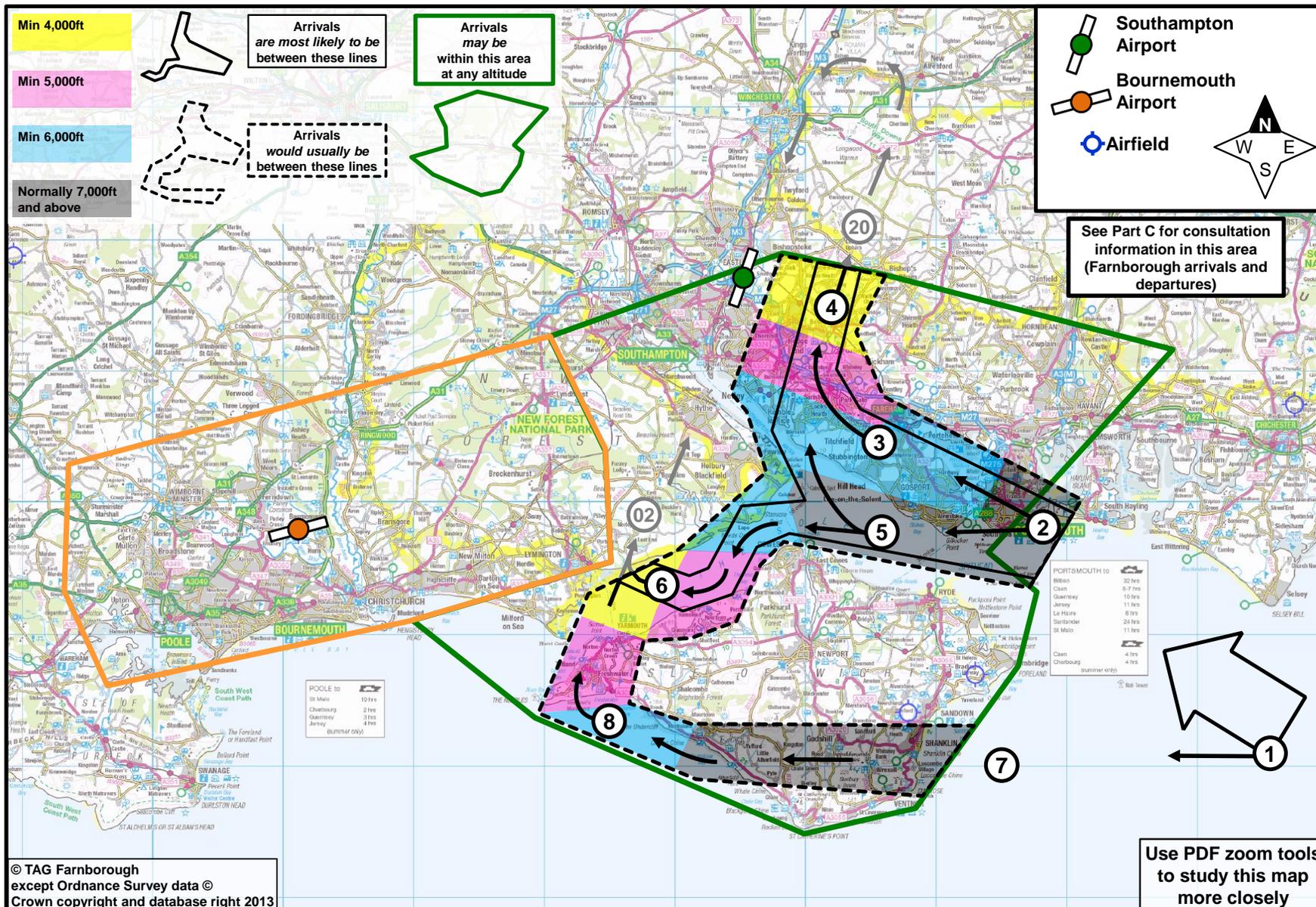


Figure D8: Proposed SOUTHAMPTON arrival flows from the east to both runways, 4,000ft-7,000ft

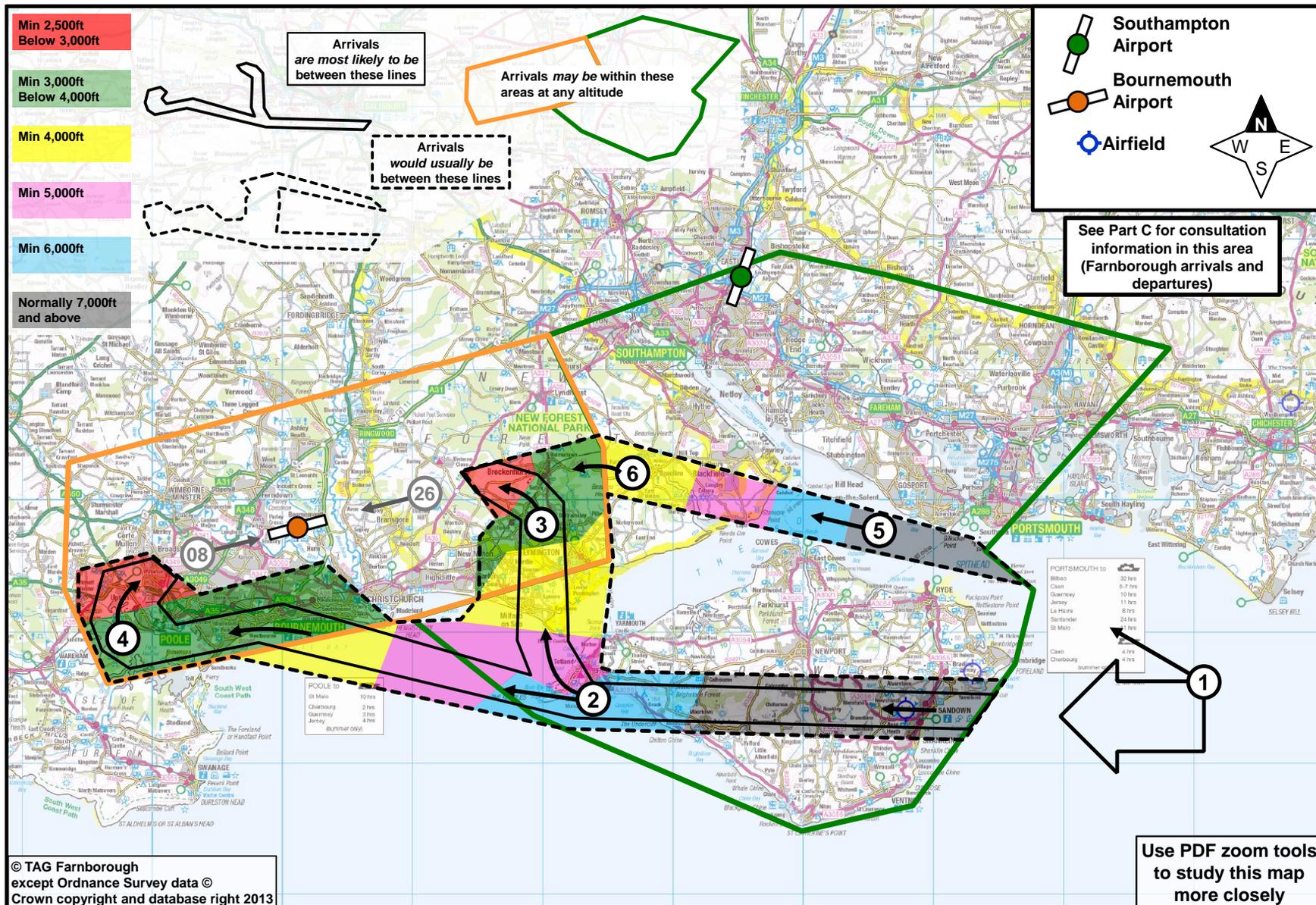


Figure D9: Proposed BOURNEMOUTH arrival flows from the east to both runways, 7,000ft to 2,500ft

**Question D4 – Specific Locations**

This question is about **places** within the consultation swathes.

In Section 4 we asked you to consider your area(s) of interest using the maps, and compare the impact now with the impact under this proposal.

We want you to tell us about places within the green and orange outlined consultation regions that you think require special consideration in the ongoing design process.

Bear in mind that aircraft at intermediate altitudes (4,000ft-7,000ft) appear smaller and quieter than those at low altitudes (below 4,000ft). Also bear in mind the relatively small number of aircraft affected in these areas.

Ideally, you would supply us with a postcode of the location. Otherwise, please use town or village names, the names of National Parks/AONBs, or other easily identifiable location. This means we can find the right place more easily.

Tell us broadly what type of place this is by choosing the closest type from the online menu. Do you think these places would benefit from the proposed change, or not, and to what extent? Describe the characteristics of these places, stating whether they should be considered special due to concerns about noise impact, visual impact or other reason.

You can do this for as many locations as you wish. We have provided a template for you below. Choose the closest or most important option from those suggested, or add your own if none are suitable.

Structuring your response like this will make it easier for us to analyse your feedback, which in turn makes it more effective on your behalf.

**Location**

Postcode, or name of easily identifiable place.

**What type of place is this?** *I consider this a...*

Populated residential area / Busy commercial area (town centre, retail park) / Industrial area (including military use) / Recreational area / Tranquil area / Sensitive area (e.g. hospital) / Village / Nature area / Tourist attraction / Transport link (railway, motorway, airport) / Other (brief description)

**What would the change in impact be, on this place?** *If the change occurred, this place would...*

Benefit significantly from the change / Benefit slightly / Probably not notice the change / Be slightly negatively impacted / Be very negatively impacted by the change

**Why would the impact change, on this place?** *If I was at this place...*

I would hear less aircraft noise / I would see fewer aircraft / It wouldn't make much difference to me / I would hear more aircraft noise / I would see more aircraft / Other (brief description)

Choose the **most relevant**, or **most important**, item from the suggestions, or add your own if none are suitable.

Please repeat this process until you have finished telling us about specific locations that are important to you.

## 5. Changes to the east of these areas

- 5.1. For information relating to changes in the vicinity of Farnborough, see Part B of this consultation document.
- 5.2. For information relating to changes between Farnborough and the south coast to the east of Portsmouth, see Part C of this consultation document.
- 5.3. Changes above 7,000ft are designed for flight efficiency because they are far less likely to be noticeable from the ground. Changes due to this proposal above 7,000ft are mostly over the sea wherever possible, or are within modified areas of the current air route network where aircraft are already common.

### **General Question**

If there is something that you think we should know that hasn't already been covered by the questions in this document (or by other questions in other parts of this consultation), please provide a statement.